KR117M-PE
DIGITAL INTELLIGENT PIANO

SERVICE NOTES
Issued by RJA



Roland

17058359E0
Printed in Japan (0430) (TP-M)

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CAUTIONARY NOTES

Before beginning the procedure, please read through this document.

To prevent accidents or injury during disassembly, always be sure to turn off the power to the main body and disconnect the main body’s AC cord.
In addition, carry out disassembly using a team of at least two persons and with the main body secured in place on the caster cups included with the instrument.

BACK UP USER DATA!

User data may be lost during the course of the procedure.
Refer to “USERS DATA SAVE AND LOAD” in the Service Notes and save the data.
After completing the procedure, restore the backed-up data to the product.

PART REPLACEMENT

When replacing components near the power-supply circuit or a heat-generating circuit (such as a circuit provided with a heat sink or including a cement resistor), carry out the procedure according to the instructions with respect to the part number, direction, and attachment position (mounting so as to leave an air gap between the component and the circuit board, etc.).

PARTS LIST

A component whose part code is ******** cannot be supplied as a service part because one of the following reasons applies.

- Because it is supplied as an assembled part (under a different part code).
- Because a number of circuit boards are grouped together and supplied as a single circuit board (under a different part code).
- Because supply is prohibited due to copyright restrictions.
- Because reissuance is restricted.
- Because the part is made to order (at current market price).

CIRCUIT DIAGRAM

In the circuit diagram, ‘NIU’ is an abbreviation for ‘NOT IN USE’.
The circuit board and circuit-board diagram show silk-screened indications, but no components are mounted.

SPECIFICATIONS

KR117M-PE DIGITAL INTELLIGENT PIANO

<Keyboard>

Keyboard

88 keys (Progressive hammer action keyboard with escapement)

Touch Sensitivity

100 levels

Keyboard Mode

Whole
Split (adjustable split point)
Layer
Arranger
Piano Style Arranger
Manual Drums / SFX

<Sound Generator>

Conforms to GM2 / GS / XG Lite

Max. Polyphony

128 voices

Tones

(Tone Search by terms and by letters)
6 groups 780 variations
(including 8 tone wheel Organs, 17 drum sets, SFX set)

Temperament

8 types, selectable tonic

Stretched Tuning

2 types

Master Tuning

415.3 Hz–466.2 Hz (adjustable in increments of 0.1 Hz)

Transpose

Key Transpose (-6–+5 in units of semitone)
Playback Transpose (-24–+24 in units of semitone)

Effects

Reverb (12 types, 127 levels)
Chorus, Rotary and 60 other types
Surround, Advanced 3D
Dynamic Emphasis (3 types)
Equalizer (5 bands, Master level)

<Arranger>

Music Styles

(Style Search by terms and by letters)
6 groups 310 styles x 3 types
(Style Orchestrator)

Music Assistant

(Search by terms and by letters)
Over 550 sets x 6 presets
Visual Music Assistant

Programmable Music Styles

Style Converter
Style Composer

Melody Intelligence

24 types

<User Programs>

Internal

36

External Memory

Max. 99 sets

<Metronome>

Tempo

Quarter note = 10 - 500

Beat

2/2, 0/4, 2/4, 3/4, 4/4, 5/4, 6/4, 7/4, 3/8, 6/8, 9/8, 12/8

Volume

10 levels

Metronome Pattern

11 patterns

Metronome Sound

8 types

<Composer>

Tracks

5 tracks / 16 tracks

Note Storage

Approx. 30,000 notes

Resolution

120 ticks per quarter notes

Recording Method

Real-time (Replace, Mix, Auto Punch In, Manual Punch In, Loop, Tempo), Step (Chord Sequencer),
Beat Map

Edit

Copy,Quantize, Delete, Insert, Erase, Transpose,
Part Exchange, Note Edit, PC Edit

Other Functions

Touch the Notes, Replay Pedal, Super Tones, Piano Designer,
Visual Lesson, Wonderland/Game, Demo,
Tone Audition, Panel Lock, User Image Display, BMP Export,
V-LINK, IR function, Slide Show, A/V Sync Output/Input

<External Storage> USB Flash Memory

Playable Software

Song: Standard MIDI Files (Format 0/1),
Roland Original Format (i-Format)
Music Style: MSA, MSD, MSE
Audio File: WAV Format (44.1 kHz 16 bits linear, stereo)

Save

Song: Standard MIDI Files (Format 0),
Roland Original Format (i-Format)
Music Style: MSE

<Internal Memory>

Internal Songs (Song Search by terms and by letters)

Over 190 songs

User Memory

Max. 200 songs on Favorites, Max. 99 User Styles, Max. 70 User Program Sets,
User Image (Internal x 1, External x 1)

<Others>

Rated Power Output

70 W x 4

Speakers

20 cm x 2, 16 cm x 2,8 cm x 2, 5 cm x 2

Display

Bouncing Beat Indicator,
Graphical Color LCD 320 x 240 dot (backlit LCD)

Notation

Grand staff / G Clef staff / F Clef staff, with note name /lyrics/ chords / fingering

Language

English / Japanese / German / French / Spanish

Lyrics

Yes (built-in, external display, MIDI output)

One Touch Program

One Touch Piano, One Touch Arranger

Pedals

Damper Pedal (half-pedal recognition)
Soft Pedal (half-pedal recognition, functions assignable)
Sostenuto Pedal (functions assignable)

Vocal Effects

Echo, Voice Transformer, Vocal Keyboard, Harmonist

Connectors

USB memory connector
FDD connector
Output jacks (L/Mono, R),
Balanced Output jacks (L, R)(XLR, Level Fixed)
Aux Output jacks (L/Mono, R)
Input jacks (L/Mono, R),
Aux Input jacks (L, R)
Mic Input jack
Headphones jack (Stereo) x 2
MIDI In connector
MIDI Out connector
USB connector
Serial connector
Ext Display connector (15-pin D-Sub type)
Video Out jack
Expression Pedal jack

Power Supply

AC 115 V, AC 117 V, AC 220 V, AC 230 V, AC 240 V (50/60 Hz)

Power Consumption

360 W

Dimensions

(including the caster cup)
1503 (W) x 1579 (D) x 1007 (H) mm
59-3/16(W) x 62-3/16(D) x 39-11/16(H) inches
Lid Open
1503 (W) x 1579 (D) x 1741 (H) mm
59-3/16(W) x 62-3/16(D) x 68-9/16(H) inches

Weights

(including the piano stand)
240 kg / 530 lbs.

Accessories

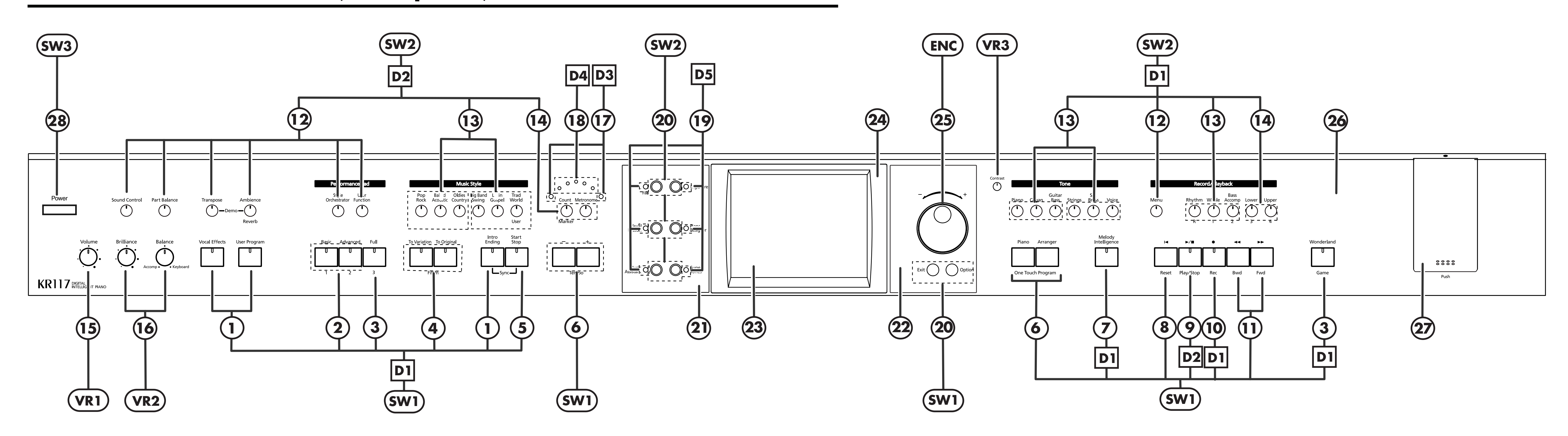
Owner's Manual [With Quick Start] :English (#73122478)
Roland 60 Classical Piano Masterpieces [NOT FOR SALE] (#02892389)
Remote Control (#03789256)
CD [Music Data Disc with vocals] (#40673034)
Dry-cell Batteries (#********)
USB Installation Guide :English (#03678701)
CD-ROM (Roland Digital Piano USB Driver) (#03902712)
Power cord [120V (#00894378),230V (#00894389),240VE(#00907001),240VA (#23495124)]
Anti-theft lock screws (#03895734)
Maintenance Kit (#70905256)
Key Cover (#22675520)
Caster Cup [3pcs/1set] (#12349401)

Options

USB Memory (Roland:M-UF128)
Floppy Disk Drive (Roland:FD-01A)
MIDI Implementation : English (#17041759),Japanese (#17041758)
Owner's Manual [With Quick Start] :Japanese (#73017256)
USB Installation Guide :Japanese (#03678689)

* *In the interest of product improvement, the specifications and/or appearance of this unit are subject to change without prior notice.*

LOCATION OF CONTROLS (Front panel)



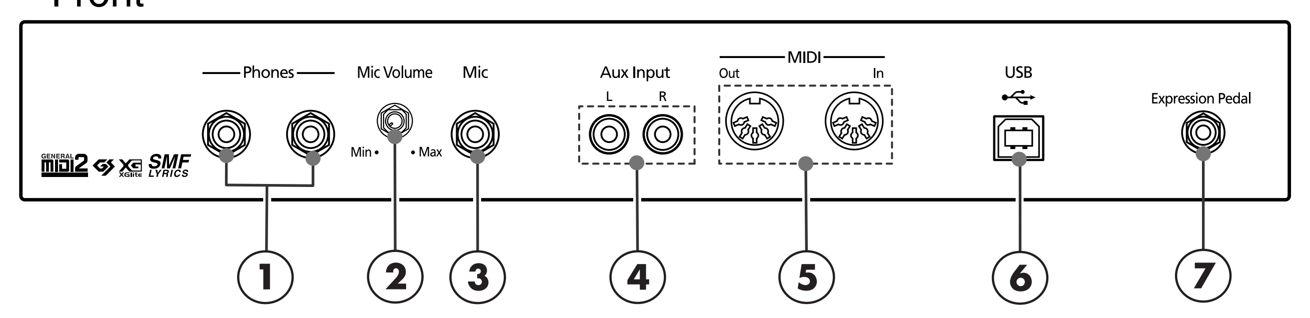
LOCATION OF CONTROLS PARTS LIST (Front panel)

NO	PART CODE	CATEGORY	PART NAME	DESCRIPTION
1	02016489	KNOB,BUTTON	Y S-KEYTOP	LD1H BRWN
2	02016456	KNOB,BUTTON	Y S-KEYTOP	LD2H BLK
3	02016445	KNOB,BUTTON	Y S-KEYTOP	LD1H BLK
4	02017367	KNOB,BUTTON	Y S-KEYTOP	LD2H DWG
5	02784589	KNOB,BUTTON	Y S-KEYTOP	LD1H LCG (WHYT BRWN GRY)
6	02896501	KNOB,BUTTON	Y S-KEYTOP	LX2H MWG
7	02016490	KNOB,BUTTON	Y S-KEYTOP	LD1H MWG
8	02016390	KNOB,BUTTON	Y S-KEYTOP	LX1H BLK
9	02016478	KNOB,BUTTON	Y S-KEYTOP	LD1H MCG
10	02016467	KNOB,BUTTON	Y S-KEYTOP	LD1H RED
11	02016401	KNOB,BUTTON	Y S-KEYTOP	LX2H BLK
12	02016278	KNOB,BUTTON	Y C-KEYTOP	MD1H BLK
13	02016290	KNOB,BUTTON	Y C-KEYTOP	MD3H BLK
14	02016289	KNOB,BUTTON	Y C-KEYTOP	MD2H BLK
15	03674590	KNOB,BUTTON	R R-KNOB	S-ELA BLK/LWG
16	03674590	KNOB,BUTTON	R R-KNOB	S-ELA BLK/LWG
17	01906623	MISCELLANEOUS	LED SPACER	LH-36-8.5
18	00453223	MISCELLANEOUS	LED SPACER	LDS-70G
19	02909034	MISCELLANEOUS	LED SPACER	LDS-60C
20	02674245	KNOB,BUTTON	F C-KEYTOP	SX2H-A BLK
21	03895678	CASING	PANEL ESCT L	ENGLISH
22	03895689	CASING	PANEL ESCT R	ENGLISH
23	17041755	DISPLAY UNIT	LCD + POSITION SENSOR	KCG057QV1DB-G77 + EMU601A2MA16 (NON ROHS COMPLIANT)
24	01459790	CASING	DISPLAY ESCT BLK	
25	22485303	KNOB,BUTTON	D R-KNOB(ALPHA-DIAL)	L BLK 248-303
26	03782190	CASING	IRMC COVER	
27	73011701	CASING	USB BOX ASSY	
28	22495576	KNOB,BUTTON	A S-BUTTON	249-576 LX BLK
D1	01904112	DIODE	LED(RED)	SLR-342VCT32 NPQ RANK
D2	15029348	DIODE	LED (GREEN)	SLR-342MCT32
D3	00127367	DIODE	LED (RED/GREEN)	SPR-39MVW
D4	00909589	DIODE	LED	LNJ382GKGXE
D5	03893601	DIODE	LED	SLR343BCT3F
SW1	13169711	SWITCH	TACT SWITCH	SKPDAA003A
SW2	01340290	SWITCH	TACT SWITCH	EVQ11A H=50
SW3	72902434	SWITCH	POWER SW ASSY	
VR1	13289185	POTENTIOMETER	11M/M POTENTIOMETER	RK11K1130 10KB LM1-15
VR2	13289186	POTENTIOMETER	11M/M POTENTIOMETER	RK11K1130 10KB LM1-15C W/CLK
VR3	01344123	POTENTIOMETER	9M/M ROTARY POTENTIOMETER	EVU F2AE20B53 5KB
ENC	01905467	ENCODER	ROTARY ENCODER	EVE GC1 F20 24B

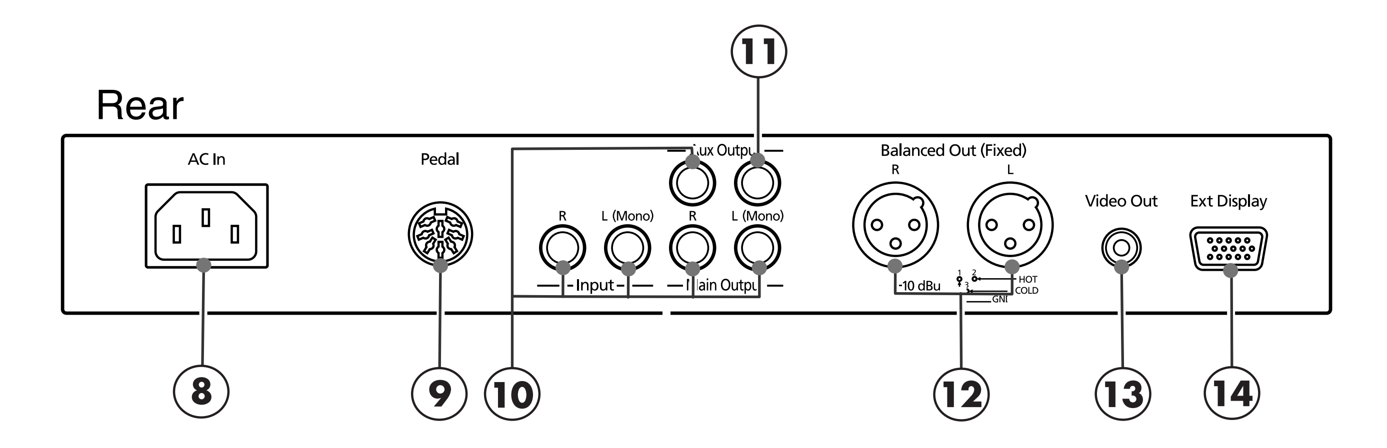
LOCATION OF CONTROLS (Jack, CD drive)

Jack Panel

Front

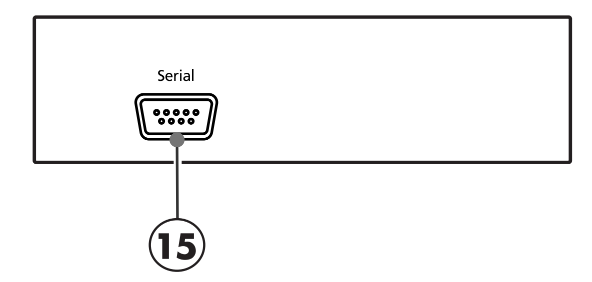


Rear



CD Drive Panel

Rear



LOCATION OF CONTROLS PARTS LIST (Jack, CD drive)

Jack Panel

Front

NO	PART CODE	CATEGORY	PART NAME	DESCRIPTION	Q'TY
1	13449252	JACK,EXT TERMINAL	6.5MM JACK	YKB21-5006 (STEREO W/SW)	2
1	22150756	SCREWS	JACK NUT 2	PLASTIC/BLK	2
2	01348189	POTENTIOMETER	12M/M ROTARY POTENTIOMETER	EVJ05HEB1B14 W/NUT W/KNOB	1
3	13449169	JACK,EXT TERMINAL	6.5MM JACK	YKB21-5078	1
3	22150756	SCREWS	JACK NUT 2	PLASTIC/BLK	1
4	01899801	JACK,EXT TERMINAL	JACK	YKC21-3834	1
5	13429676	JACK,EXT TERMINAL	MIDI CONNECTOR	YKF51-5048 (TWIN)	1
6	02781189	JACK,EXT TERMINAL	USB CONNECTOR	YKF45-0021	1
7	13449148	JACK,EXT TERMINAL	6.5MM JACK	YKB21-5009	1
7	22150756	SCREWS	JACK NUT 2	PLASTIC/BLK	1

Rear

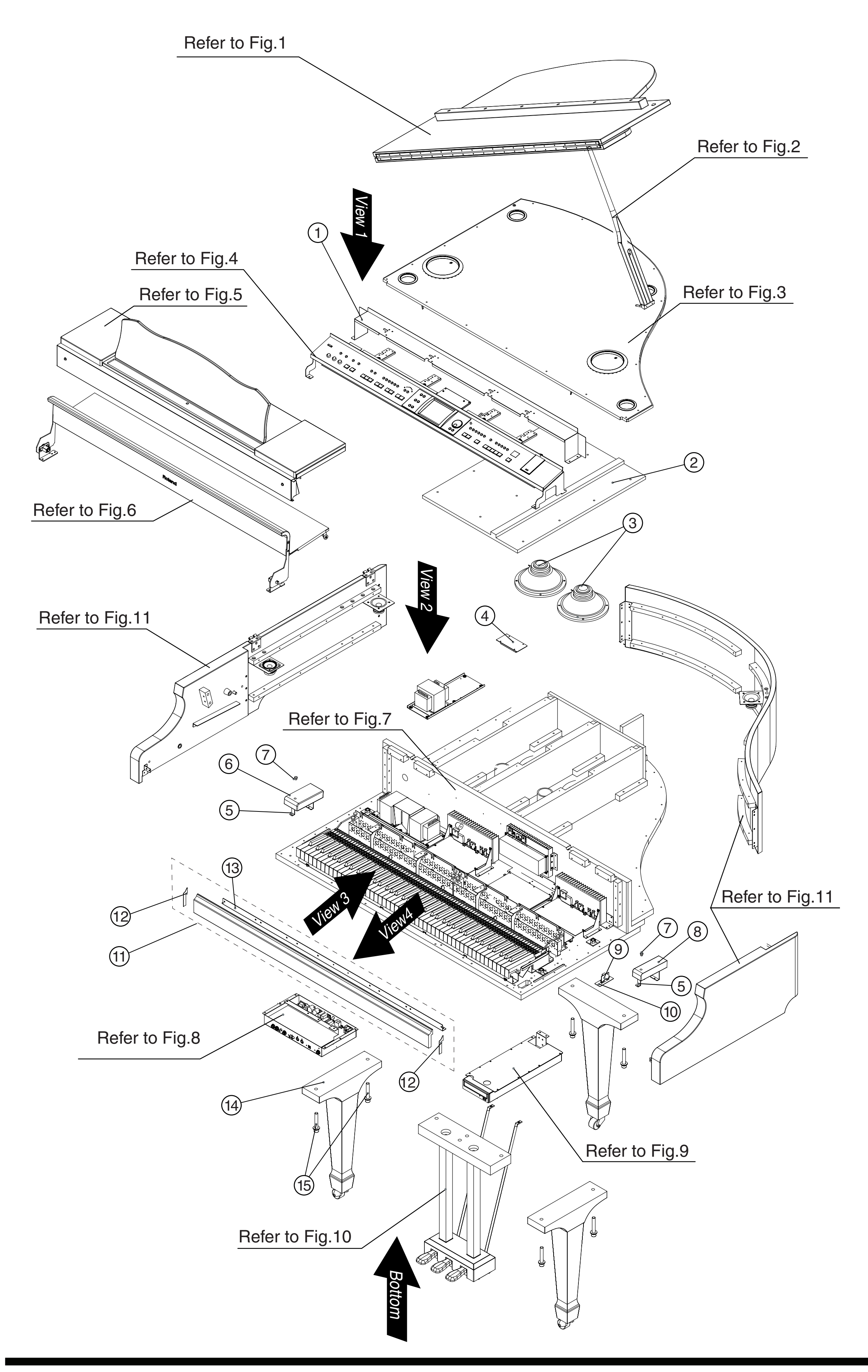
NO	PART CODE	CATEGORY	PART NAME	DESCRIPTION	Q'TY
8	00125023	AC INLET,OUTLET	AC INLET	PWI1818 (INL-7) 10A/250V 3P	1
9	00340223	JACK,EXT TERMINAL	DIN SOCKET	YKF51-5031	1
10	13449275	JACK,EXT TERMINAL	6.5MM JACK	YKB21-5074	5
11	13449253	JACK,EXT TERMINAL	6.5MM JACK	YKB21-5018	1
12	00679767	JACK,EXT TERMINAL	XLR CONNECTOR	NC3MAH	2
13	02232245	JACK,EXT TERMINAL	RCA(PIN) JACK	RCA(PIN) YKC21-3661	1
14	03899545	JACK,EXT TERMINAL	D-SUB CONNECTOR	KEY-15S-2A3F(LF/SN)	1

CD Drive Panel

Rear

NO	PART CODE	CATEGORY	PART NAME	DESCRIPTION	Q'TY
15	03906756	JACK,EXT TERMINAL	D-SUB CONNECTOR	XM2C-0912-112	1

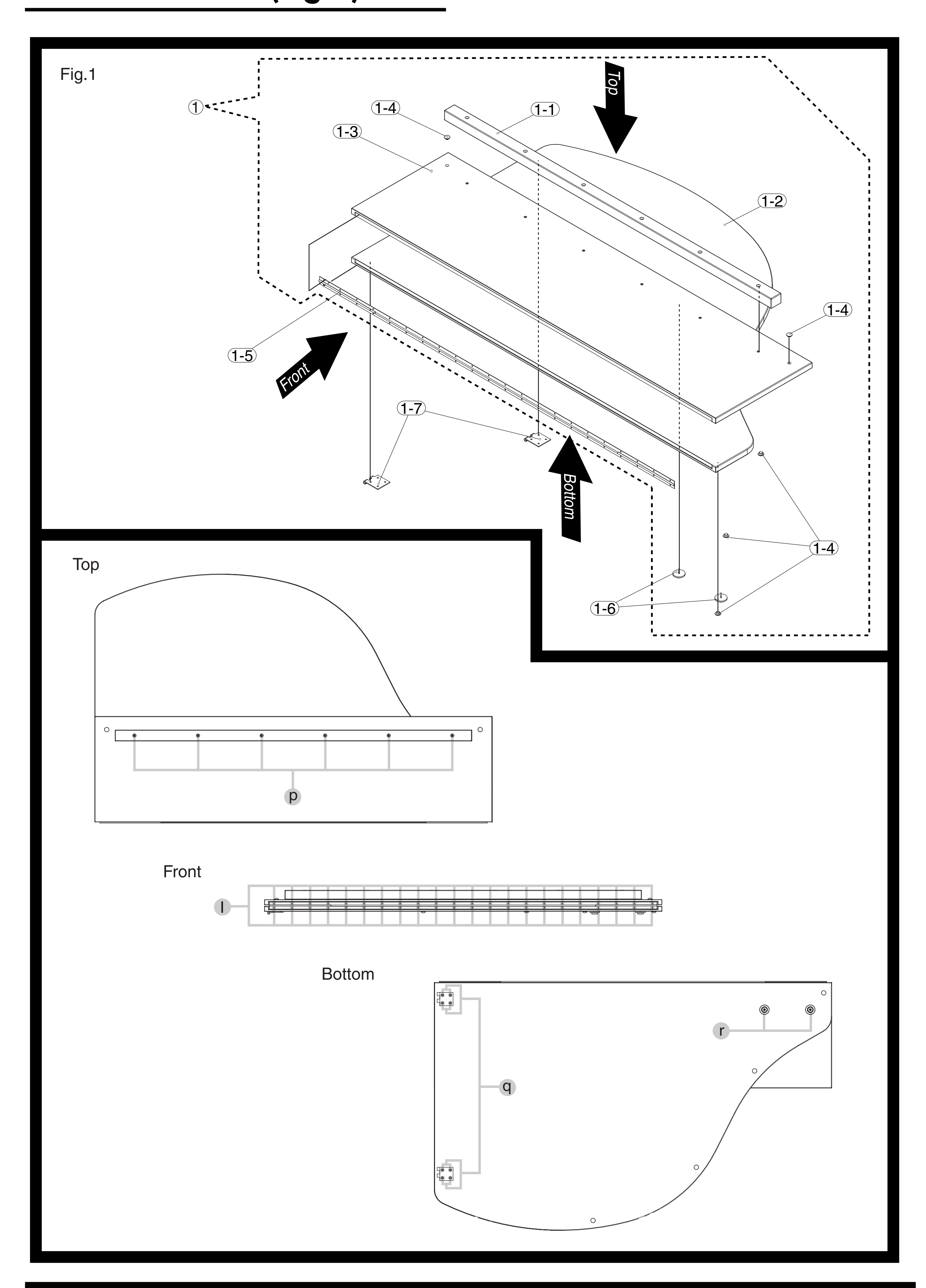
EXPLODED VIEW (All)



EXPLODED VIEW PARTS LIST (All)

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
1	04017345	HAZARD COVER		1
2	04017256	BOARD SPEAKER BOX TOP		1
3	01017523	WOOFER	W-20143B	2
4	73016756	SPD BOARD ASSY		1
5	02017889	END BLOCK HOLDER		2
6	17041272	END BLOCK L ASSY	FOR SERVICE	1
7	12359103	RUBBER FOOT	SJ-5003	2
8	17041273	END BLOCK R ASSY	FOR SERVICE	1
9	72901712	USB HOST-A ASSY		1
10	03895701	USB PLATE		1
11	17041271	BLIND ASSY		1
	NOTE: 'BLIND ASSY' includes the following parts.			
12	01450301	BLIND CUSHION		1
13	02129423	BLIND ANGLE		1
14	04120889	LEG		3
15	40018212	WASHER 12X26	PLANE BZC	8
15	40018223	SPW M12	BZC	8
15	40238612	SCREW M12X75	HEX SOCKET BZC	8

EXPLODED VIEW (Fig.1)



EXPLODED VIEW PARTS LIST (Fig.1)

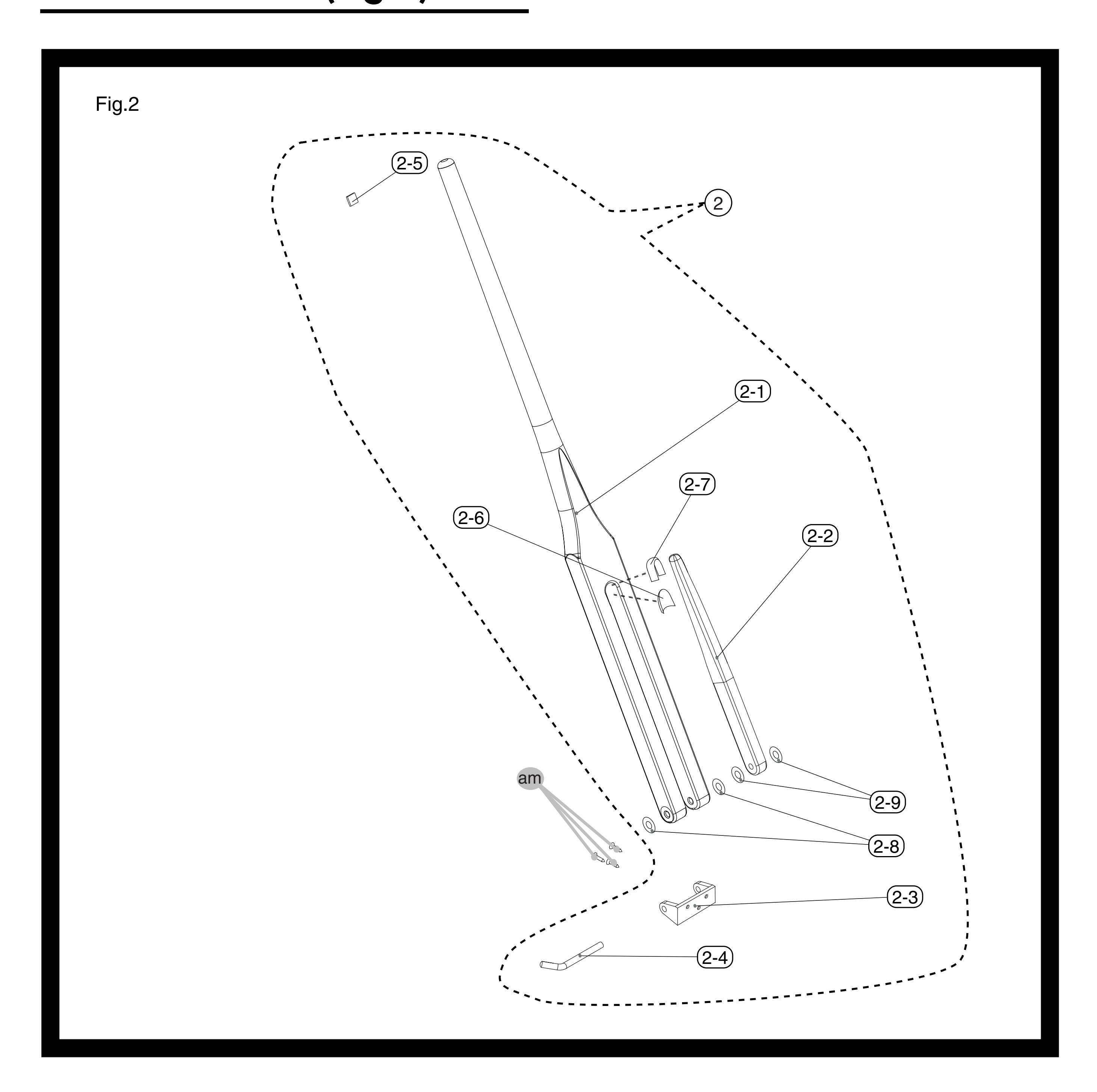
Fig.1

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
1	17041261	TOP BOARD SET		1
	NOTE: 'TOP BOARD SET' includes the following parts.			
1-1	********	TOP BAR ASSY		
1-2	********	REAR TOP BD ASSY		1
1-3	********	FRNT TOP BD ASSY		1
1-4	12359103	RUBBER FOOT	SJ-5003	2
1-5	03124423	LONG HINGE 1462MM		1
1-6	04121112	PROP CUP		2
1-7	01891067	TOP BOARD HINGE		2

Top / Front / Bottom

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
l	40342312	SCREW 2.8X10	WOOD ODD TRUSS BRASS	44
p	40239112	SCREW 5.1X56	FLAT HEAD WOOD BR	6
q	40017623	SCREW M4X15	FLAT HEAD MACHINE BRUSS	8
r	03125990	PROP CUP SCREW		2

EXPLODED VIEW (Fig.2)

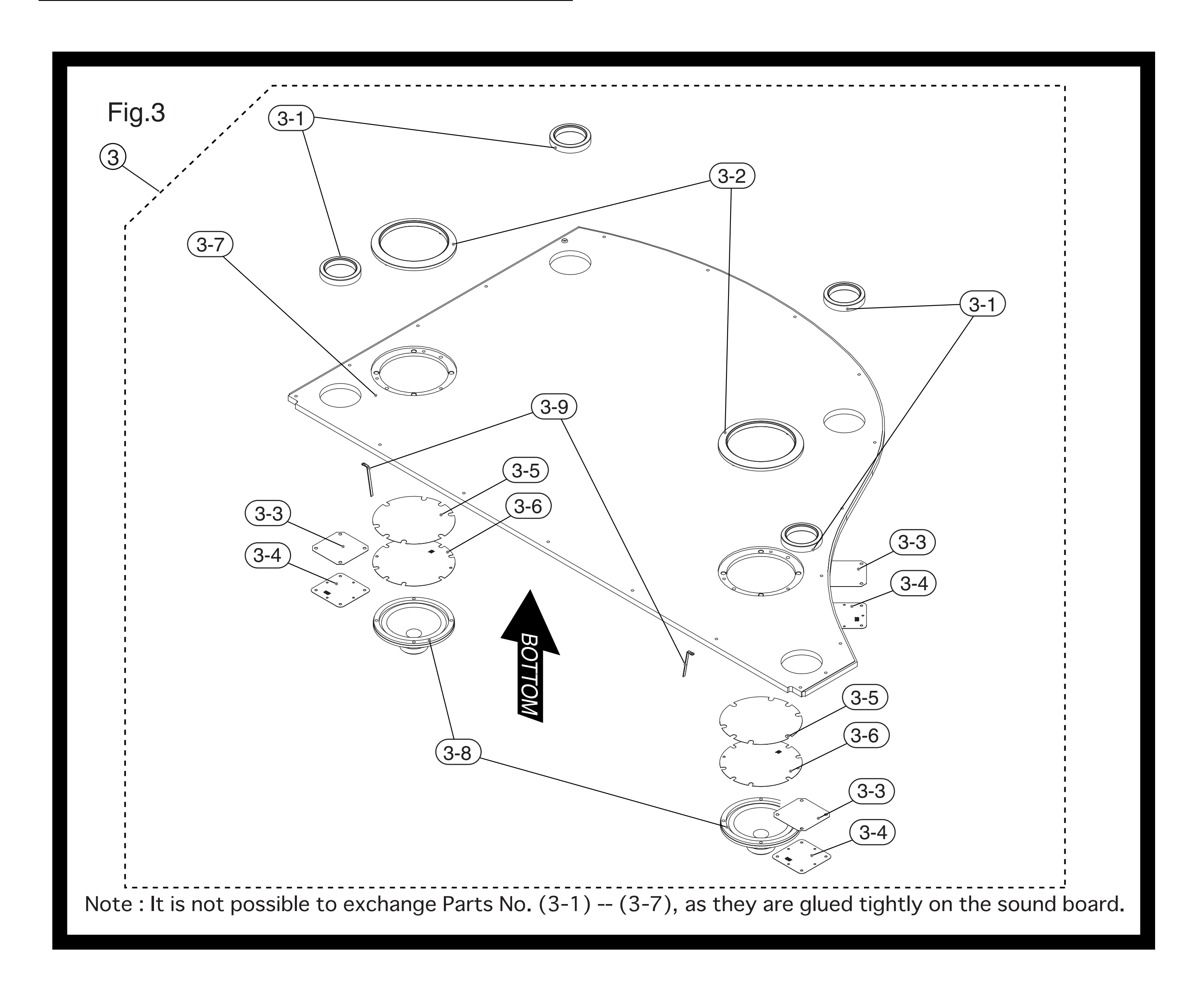


EXPLODED VIEW PARTS LIST (Fig.2)

Fig.2

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
2	17041115	PROP ASSY	FOR SERVICE(17048687+17048686)	1
	NOTE: 'PROP ASSY' includes the following parts.			
2-1	********	PROP L		1
2-2	********	PROP S		1
2-3	********	PROP STAY HINGE		1
2-4	********	PROP SHAFT		1
2-5	04121101	PROP CUSHION D		1
2-6	04121090	PROP CUSHION C		1
2-7	04121089	PROP CUSHION B		1
2-8	********	PROP CUSHION	PROP L	2
2-9	********	PROP CUSHION	PROP S	2
am	********	SCREW 3.8X20	FLAT HEAD WOOD BR	6

EXPLODED VIEW (Fig.3-1)



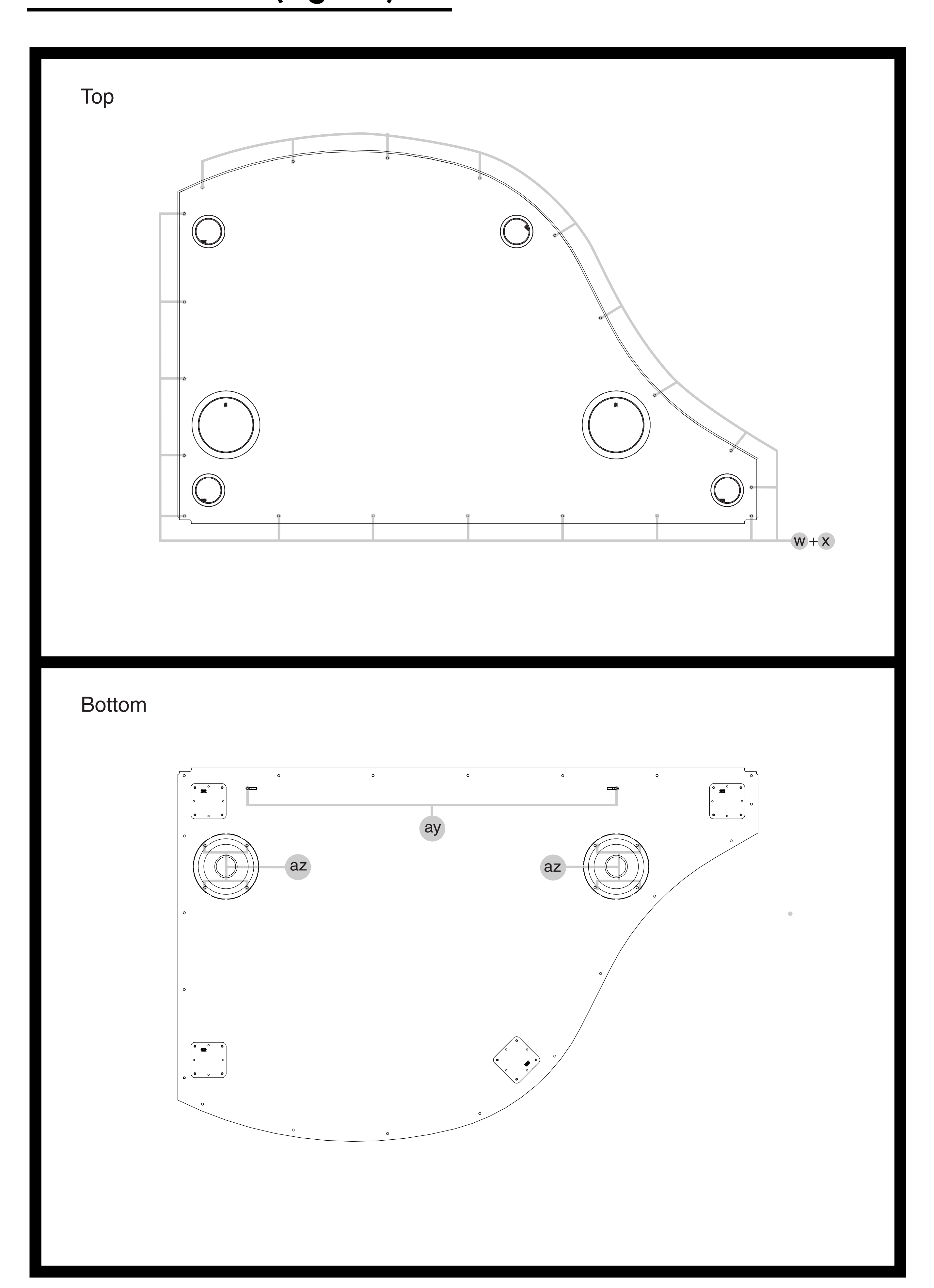
Note : It is not possible to exchange Parts No. (3-1) -- (3-7), as they are glued tightly on the sound board.

EXPLODED VIEW PARTS LIST (Fig.3-1)

Fig.3

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
3	17041816	SOUND BOARD ASSY (WITH MOLE)	FOR SERVICE	1
	NOTE: 'SOUND BOARD ASSY (WITH MOLE)' includes the following parts.			
3-1	********	SPEAKER GRILL S		4
3-2	********	SPEAKER GRILL L		2
3-3	********	SPEAKER COVER S		4
3-4	********	SP CUSHION S		4
3-5	********	SPEAKER COVER L		2
3-6	********	SP CUSHION L		2
3-7	********	SOUND BOARD		1
3-8	02895356	FULL-RANGE SPEAKER	M16DC54	2
3-9	40017378	COATING CLIP	CS-7	2

EXPLODED VIEW (Fig.3-2)



EXPLODED VIEW PARTS LIST (Fig.3-2)

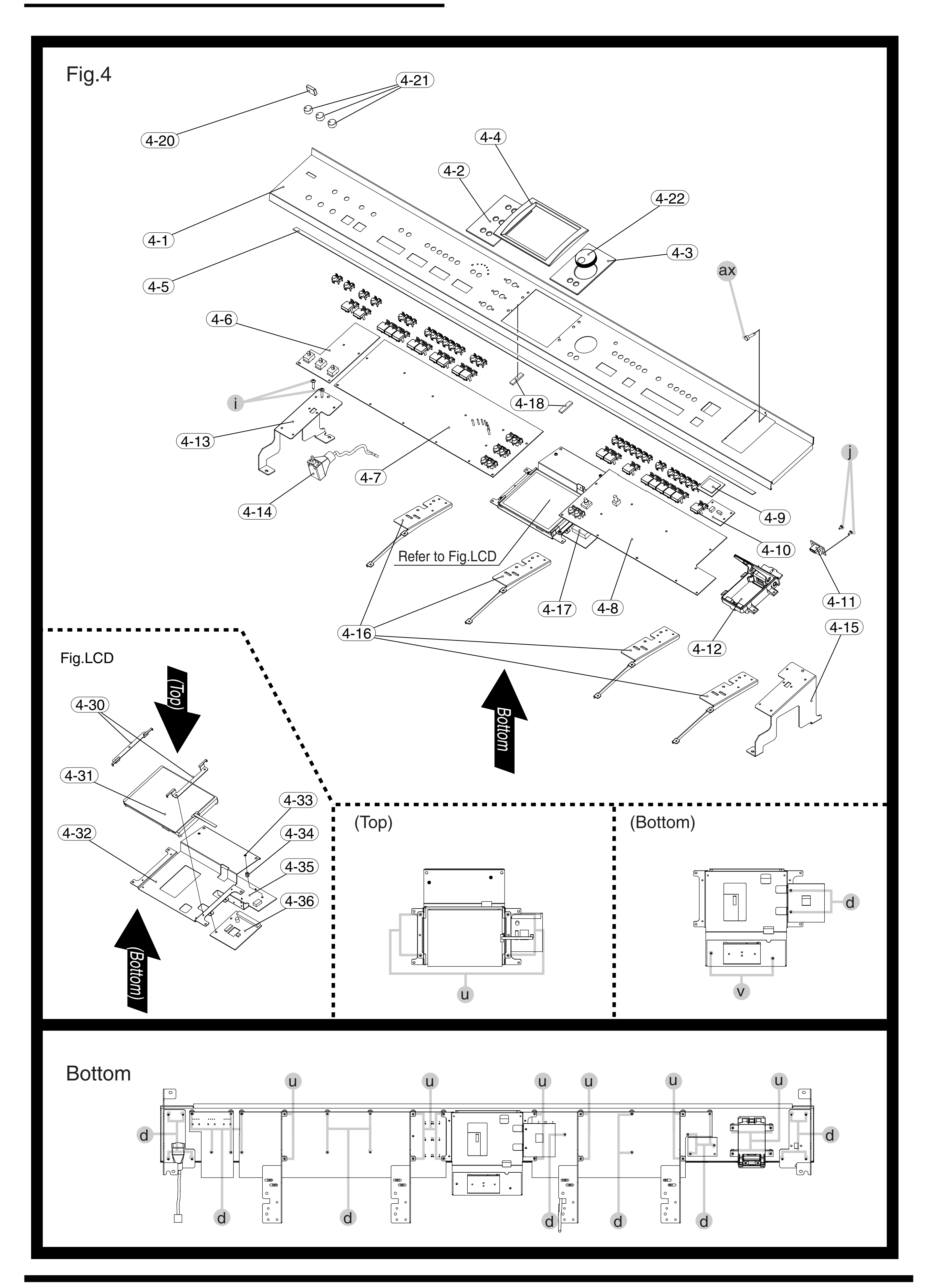
Top

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
w	40239101	SCREW 3.8X32	FLAT HEAD WOOD BR	20
x	40237545	WASHER M4	ROSETTE BRASS	20

Bottom

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
ay	40127545	SCREW M4X10	TRUSS TAPPING A FE BZC	2
az	40011745	HEX NUT M4	SPRING NUT FE ZC	8

EXPLODED VIEW (Fig.4)



EXPLODED VIEW PARTS LIST (Fig.4)

Fig.4

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
4-1	04017878	FRONT PANEL	ENGLISH	1
4-1	04017312	FRONT PANEL	JAPANESE	1
4-2	03895678	PANEL ESCT L	ENGLISH	1
4-2	03782245	PANEL ESCT L PMMA	JAPANESE	1
4-3	03895689	PANEL ESCT R	ENGLISH	1
4-3	03782256	PANEL ESCT R PMMA	JAPANESE	1
4-4	01459790	DISPLAY ESCT BLK		1
4-5	01236067	KEY FELT		1
4-6	72895978	VOLUME BOARD ASSY		1
4-7	72895990	PANEL BOARD L ASSY		1
4-8	73122078	PANEL BOARD R ASSY		1
4-9	03782190	IRMC COVER		1
4-10	72896190	IRMC BOARD ASSY		1
4-11	73122067	USB HOST-B BOARD		1
4-12	73011701	USB BOX ASSY		1
4-13	04017434	PANEL HOLDER L		1
4-14	72902434	POWER SW ASSY		1
4-15	04017445	PANEL HOLDER R		1
4-16	04017412	CENTER HOLDER UPPER		4
4-17	03895723	LCD R CUSHION		1
4-18	03569390	TOUCH PANEL CUSHION H		2
4-20	22495576	A S-BUTTON	249-576 LX BLK	1
4-21	03674590	R R-KNOB	S-ELA BLK/LWG	3
4-22	22485303	D R-KNOB(ALPHA-DIAL)	L BLK 248-303	1
i	40237101	SCREW M3X8	PAN MACHINE W/SW+SMALL PW BZC	2
j	40011312	SCREW 3X8	BINDING TAPTITE P BZC	2
ax	03895734	CUP SCREW M3X14	BZC	1

Fig.LCD

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
4-30	03893334	LCD HOLDER B		2
4-31	17041755	LCD + POSITION SENSOR	KCG057QV1DB-G77 + EMU601A2MA16 (NON ROHS COMPLIANT)	1
4-32	04017323	LCD HOLDER		1
	NOTE: 'LCD HOLDER' includes the following parts.			
4-33	********	SCREW		2
4-34	********	LONG NUT		2
4-35	72896012	INVERTER BOARD ASSY		1
4-36	17041861	LCD R BOARD ASSY	(NON ROHS COMPLIANT)	1

Fig.LCD (Top)

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
u	40011101	SCREW 3X8	BINDING TAPTITE B BZC	4

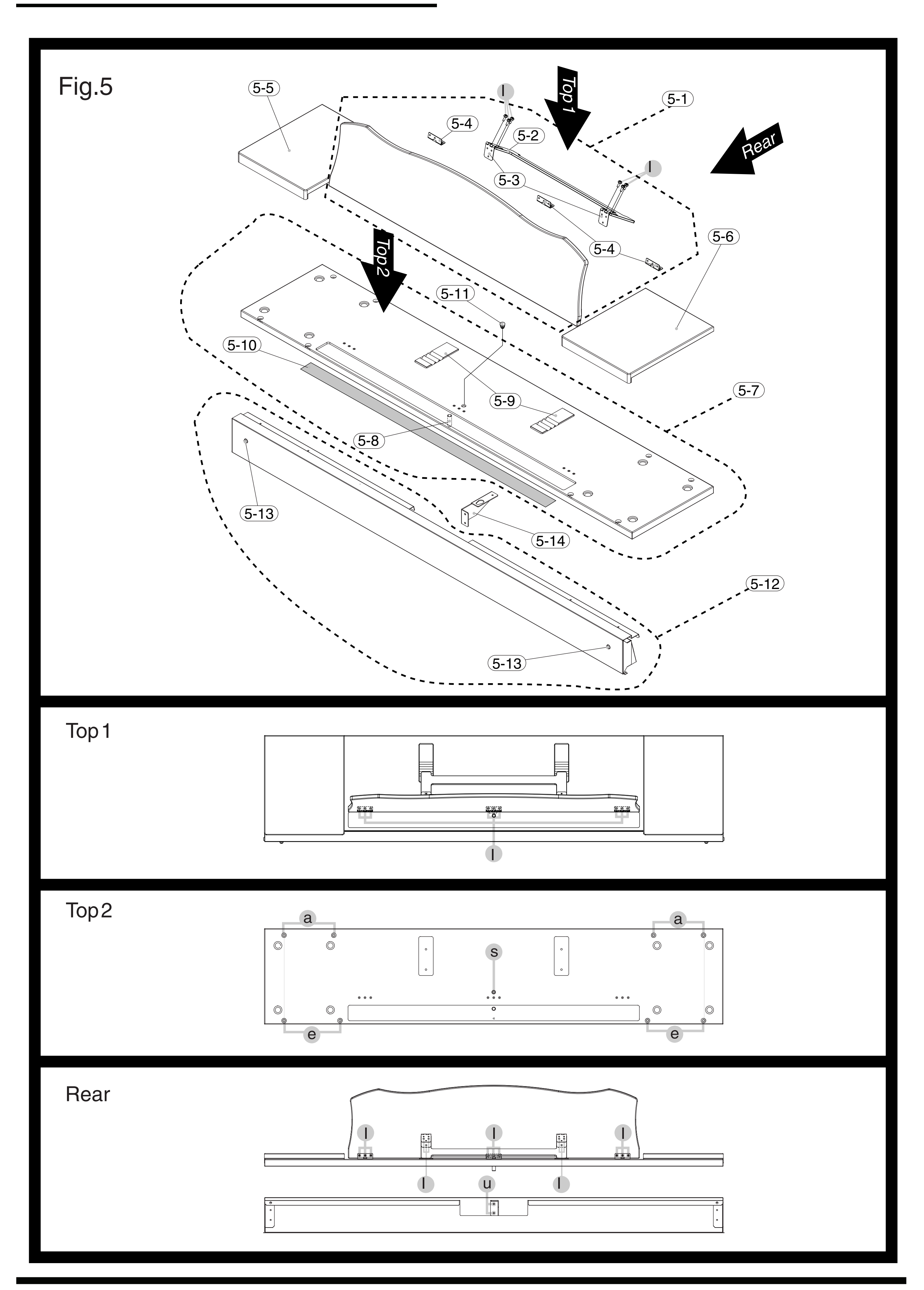
Fig.LCD (Bottom)

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
d	40011056	SCREW 3X6	BINDING TAPTITE B ZC	2
v	40013056	SCREW M3X6	PAN MACHINE W/SW+PW(S) ZC	2

Bottom

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
d	40011056	SCREW 3X6	BINDING TAPTITE B ZC	25
u	40011101	SCREW 3X8	BINDING TAPTITE B BZC	14

EXPLODED VIEW (Fig.5)



EXPLODED VIEW PARTS LIST (Fig.5)

Fig.5

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
5-1	17048685	MUSIC REST ASSY	FOR SERVICE	1
	NOTE: 'MUSIC REST ASSY' includes the following parts.			
5-2	01347101	MUSIC REST STAY		1
5-3	22325174	HINGE A	232-174	2
5-4	12329175	HINGE B	232-175	3
5-5	17048682	MR SIDE BLOCK L ASSY	FOR SERVICE	1
5-6	17048683	MR SIDE BLOCK R ASSY	FOR SERVICE	1
5-7	17048681	TOP COVER ASSY	FOR SERVICE	1
	NOTE: 'TOP COVER ASSY' includes the following parts.			
5-8	********	DOWEL PIN 10X30	FOR WOOD	1
5-9	01346789	MR STOPPER		2
5-9	01347201	MR STOPPER CUSHION		2
5-10	01347212	MUSIC REST CUSHION		1
5-11	01347145	TOP COVER CAP PZ-4		1
5-12	17041009	LOCK RAIL ASSY		1
	NOTE: 'LOCK RAIL ASSY' includes the following parts.			
5-13	12359103	RUBBER FOOT	SJ-5003	2
5-14	01451378	CENTER HOLDER		1
l	40342312	SCREW 2.8X10	WOOD ODD TRUSS BRASS	6

Top 1

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
l	40342312	SCREW 2.8X10	WOOD ODD TRUSS BRASS	9

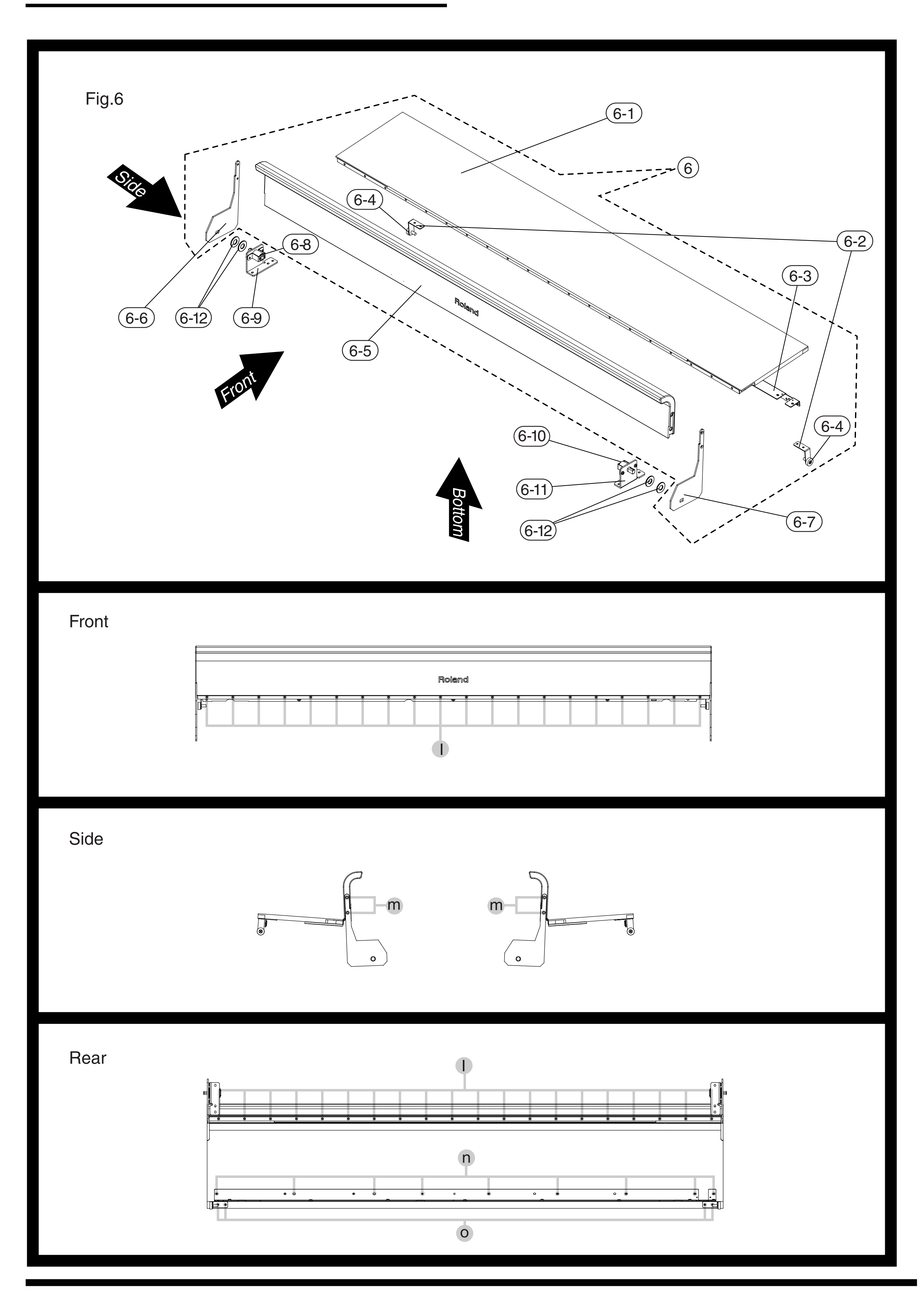
Top 2

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
a	40012134	SCREW 4X30	TRUSS TAPPING A ZC	4
e	40128512	SCREW 4X25X20	PAN WASHER HEAD TAPTITE B BZC	4
s	40013090	SCREW M4X20	PAN MACHINE W/SW+SMALL PW BZC	1

Rear

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
l	40342312	SCREW 2.8X10	WOOD ODD TRUSS BRASS	15
u	40011101	SCREW 3X8	BINDING TAPTITE B BZC	2

EXPLODED VIEW (Fig.6)



EXPLODED VIEW PARTS LIST (Fig.6)

Fig.6

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
6	17041269	LID ASSY	FOR SERVICE	1
	NOTE: 'LID ASSY' includes the following parts.			
6-1	********	REAR LID ASSY	BOARD	1
6-2	01234023	LID STAY		2
6-3	01346267	BLIND ANGLE		1
6-4	12179862	BEARING	217-862	2
6-5	********	FRONT LID ASSY	BOARD	1
6-6	03124345	LID ARM L		1
6-7	03124356	LID ARM R		1
6-8	02892623	DAMPER HOLDER		1
6-8	02892645	DAMPER	FYN-N1-L-RL1 CCW	1
6-9	03124278	DAMPER HOLDER L		1
6-10	02892623	DAMPER HOLDER		1
6-10	02892656	DAMPER	FYN-N1-L-RL1 CW	1
6-11	03124289	DAMPER HOLDER R		1
6-12	03124478	OILES WASHER	80W-12	4

Front

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
l	40342312	SCREW 2.8X10	WOOD ODD TRUSS BRASS	20

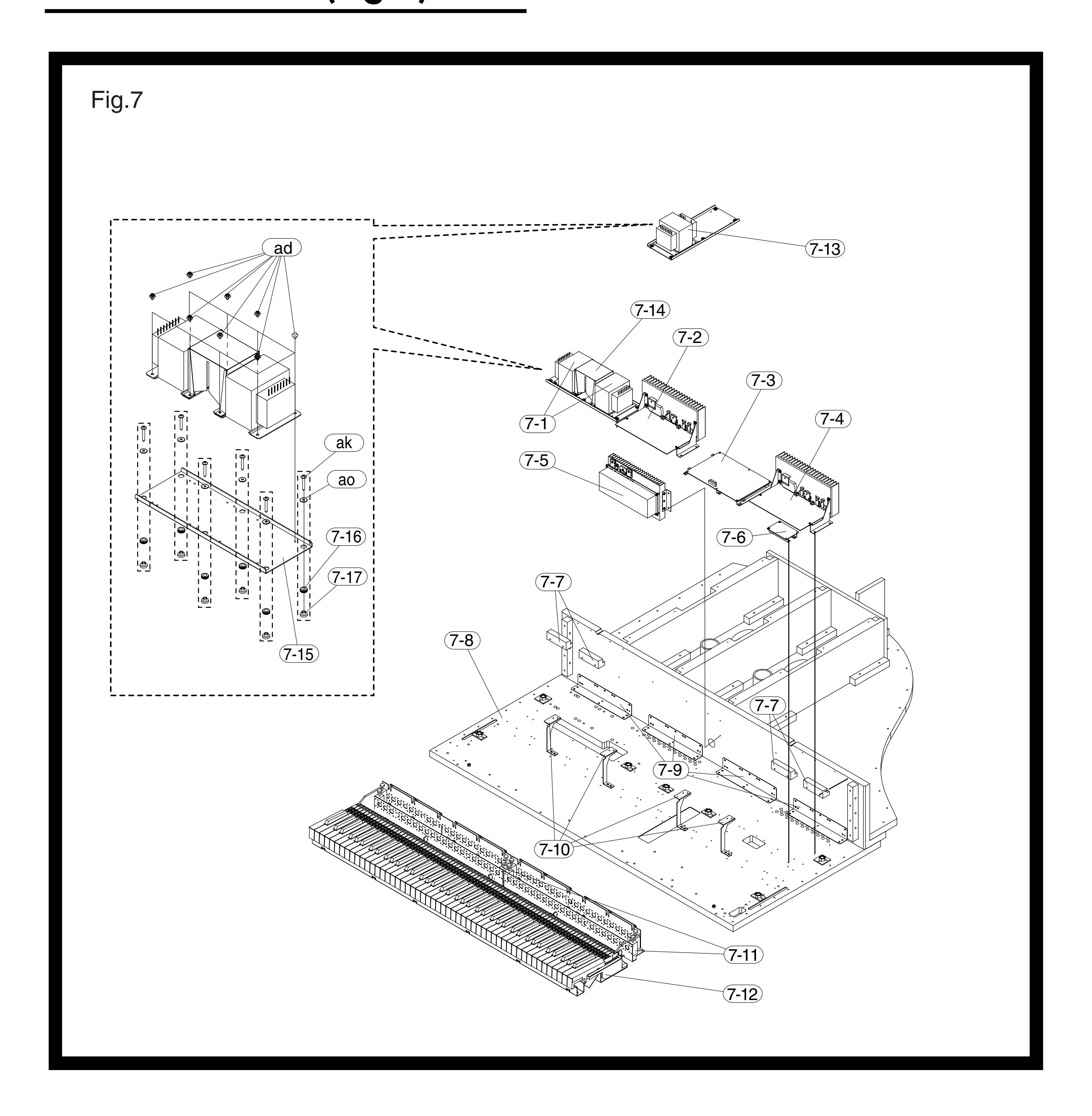
Side

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
m	40017489	SCREW M4X15	FLAT HEAD MACHINE BZC	4

Rear

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
l	40342312	SCREW 2.8X10	WOOD ODD TRUSS BRASS	20
n	40010723	SCREW 3X10	BINDING TAPPING A FE ZC	9
o	40012090	SCREW 4X12	TRUSS TAPPING A1 FE ZC	4

EXPLODED VIEW (Fig.7)

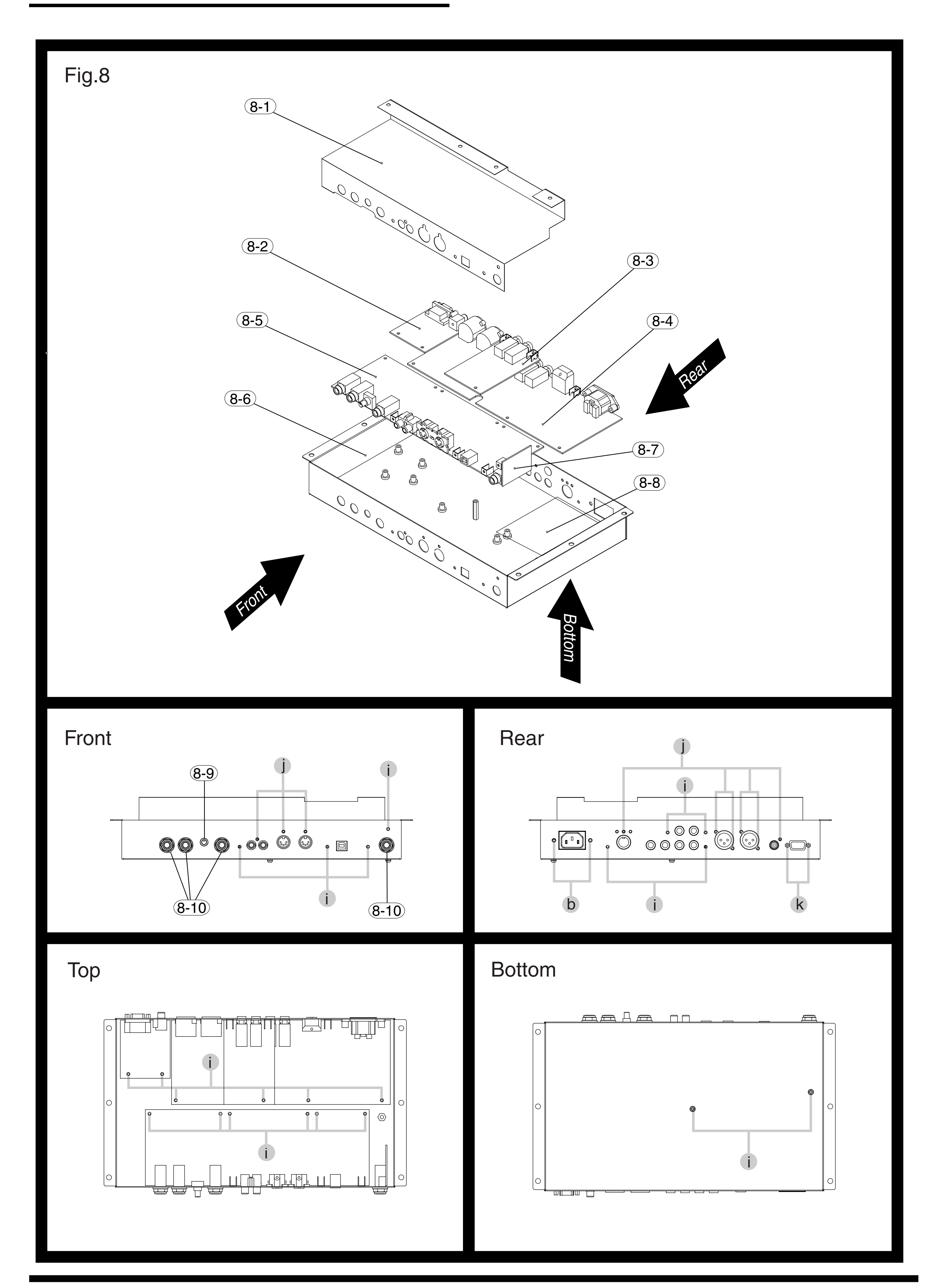


EXPLODED VIEW PARTS LIST (Fig.7)

Fig.7

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
7-1	04010623	TRANSFORMER	UNIVERSAL	2
7-2	73017278	ANALOG PHANTOM L		1
7-3	73122301	MAIN BOARD TOTAL		1
7-4	73122089	ANALOG PHANTOM R		1
7-5	73121889	PS BOARD ASSY		1
7-6	72902967	USB HUB BOARD ASSY		1
7-7	01450323	CROSS BLOCK CLEAT		4
7-8	17041818	BOTTOM BOARD SET	FOR SERVICE	1
7-9	********	CROSS BLOCK ANGLE		4
7-10	04017423	CENTER HOLDER LOWER		4
7-11	72231645	SOLENOID UNIT ASSY	FOR PA-5A	2
7-12	17041752	KEYBOARD ASSY	PA-5C88-A WITH KEY ARM	1
7-13	03122601	POWER TRANS	UNIVERSAL	1
7-14	04123967	TRANS COVER		1
7-15	04017356	TRANS PLATE		2
7-16	03678823	GROMMET	NG-79-C	12
7-17	03678801	COLLAR	NG-79-C	12
ad	40013012	SCREW M4X10	PAN W SEMS FE BZC	8
ak	40345123	SCREW M4X35	PAN MACHINE W/SW+PW BZC	12
ao	40670601	FLAT WASHER	4X13XT1 OXIDATION ZC	12

EXPLODED VIEW (Fig.8)



EXPLODED VIEW PARTS LIST (Fig.8)

Fig.8

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
8-1	04017612	SHIELD SHEET		1
8-2	73121834	VIDEO BOARD ASSY		1
8-3	72902312	AUX BOARD ASSY		1
8-4	73121890	REAR JACK BOARD ASSY 100/117V		1
8-5	73121901	FRONT JACK BOARD ASSY		1
8-6	04017623	JACK CASE		1
8-7	73121823	EXP PDL BOARD ASSY		1
8-8	03890112	INSULATING SHEET INLET		1

Front

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
8-9	01348189	EVJ05HEB1B14 W/NUT W/KNOB	12M/M ROTARY POTENTIOMETER	1
8-10	22150756	JACK NUT 2	PLASTIC/BLK	4
i	40237101	SCREW M3X8	PAN MACHINE W/SW+SMALL PW BZC	4
j	40011312	SCREW 3X8	BINDING TAPTITE P BZC	3

Rear

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
b	40011123	SCREW 4X8	BINDING TAPTITE B BZC	2
i	40237101	SCREW M3X8	PAN MACHINE W/SW+SMALL PW BZC	4
j	40011312	SCREW 3X8	BINDING TAPTITE P BZC	6
k	03900767	KFS-4S-B1WM		2

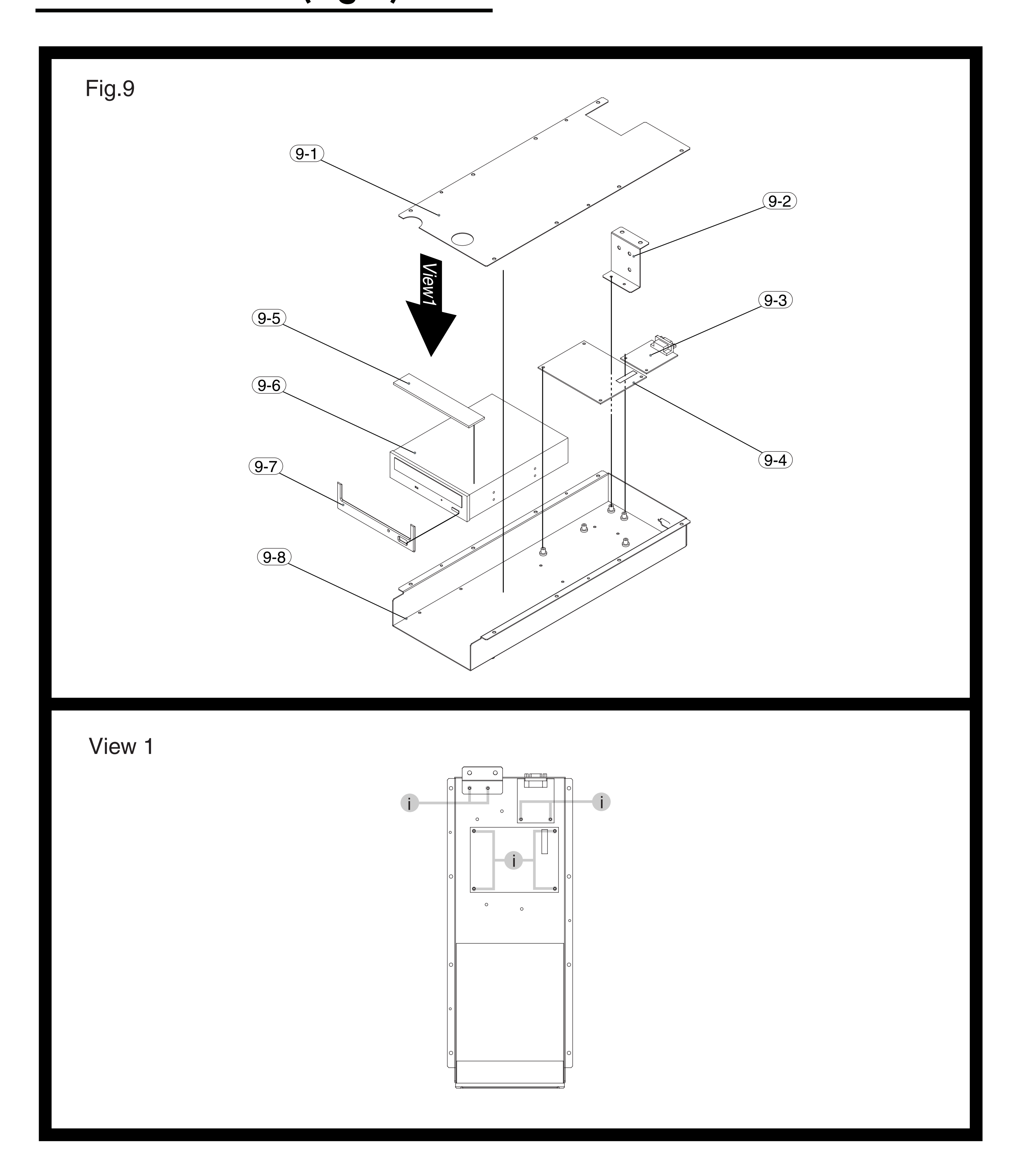
Top

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
i	40237101	SCREW M3X8	PAN MACHINE W/SW+SMALL PW BZC	12

Bottom

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
i	40237101	SCREW M3X8	PAN MACHINE W/SW+SMALL PW BZC	2

EXPLODED VIEW (Fig.9)



EXPLODED VIEW PARTS LIST (Fig.9)

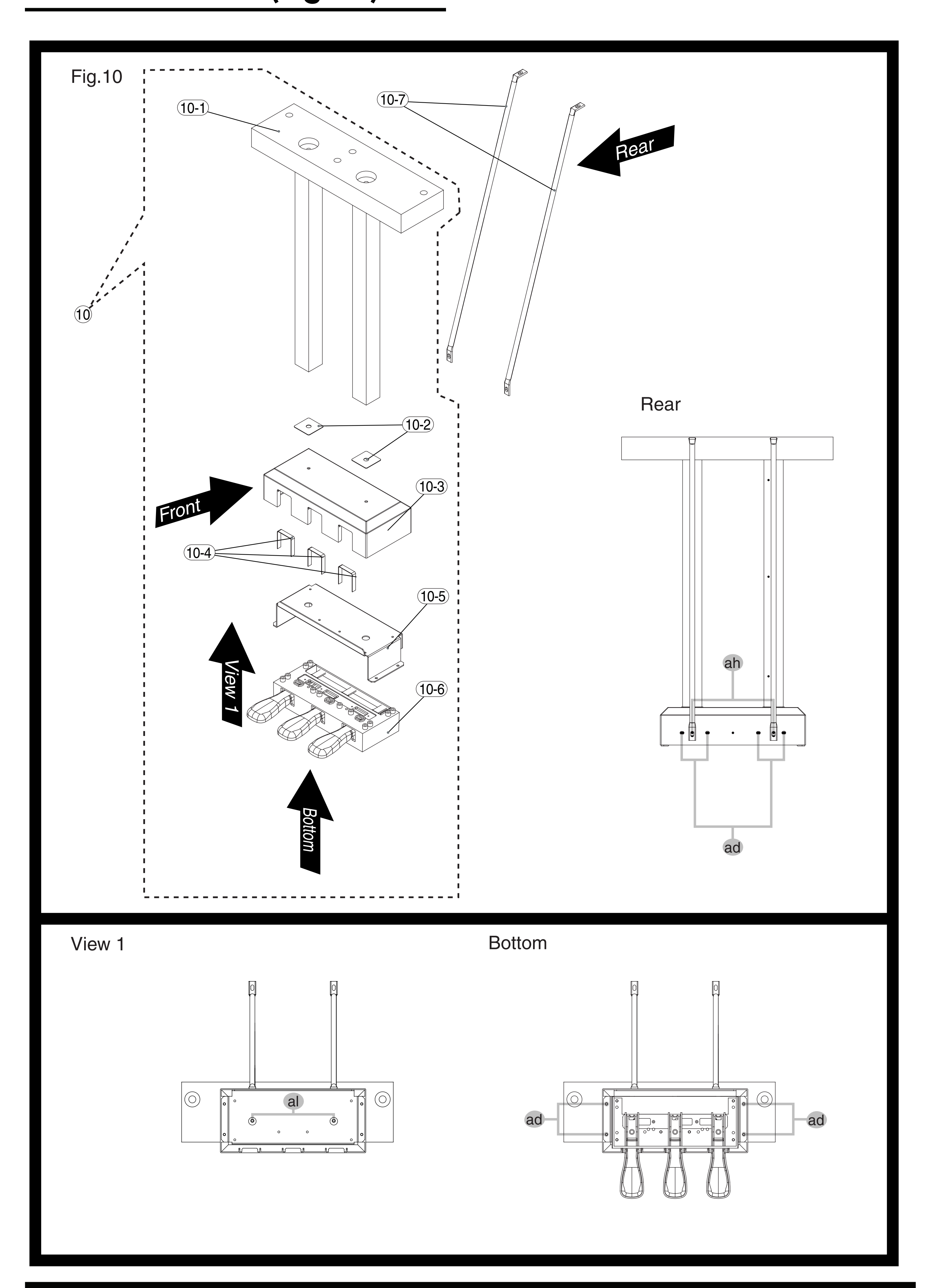
Fig.9

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
9-1	04017478	CD CASE COVER		1
9-2	04017467	CD HOLDER		1
9-3	73019890	DEVICE SERVER BOARD		1
9-4	73016712	DECODE BOARD		1
9-5	04121134	CD CUSHION		1
9-6	03781223	DVD DRIVE UNIT	SR-8589-CRBA	1
9-7	04121123	CD PANEL		1
9-8	04017456	CD CASE		1

View 1

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
i	40237101	SCREW M3X8	PAN MACHINE W/SW+SMALL PW BZC	8

EXPLODED VIEW (Fig.10)



EXPLODED VIEW PARTS LIST (Fig.10)

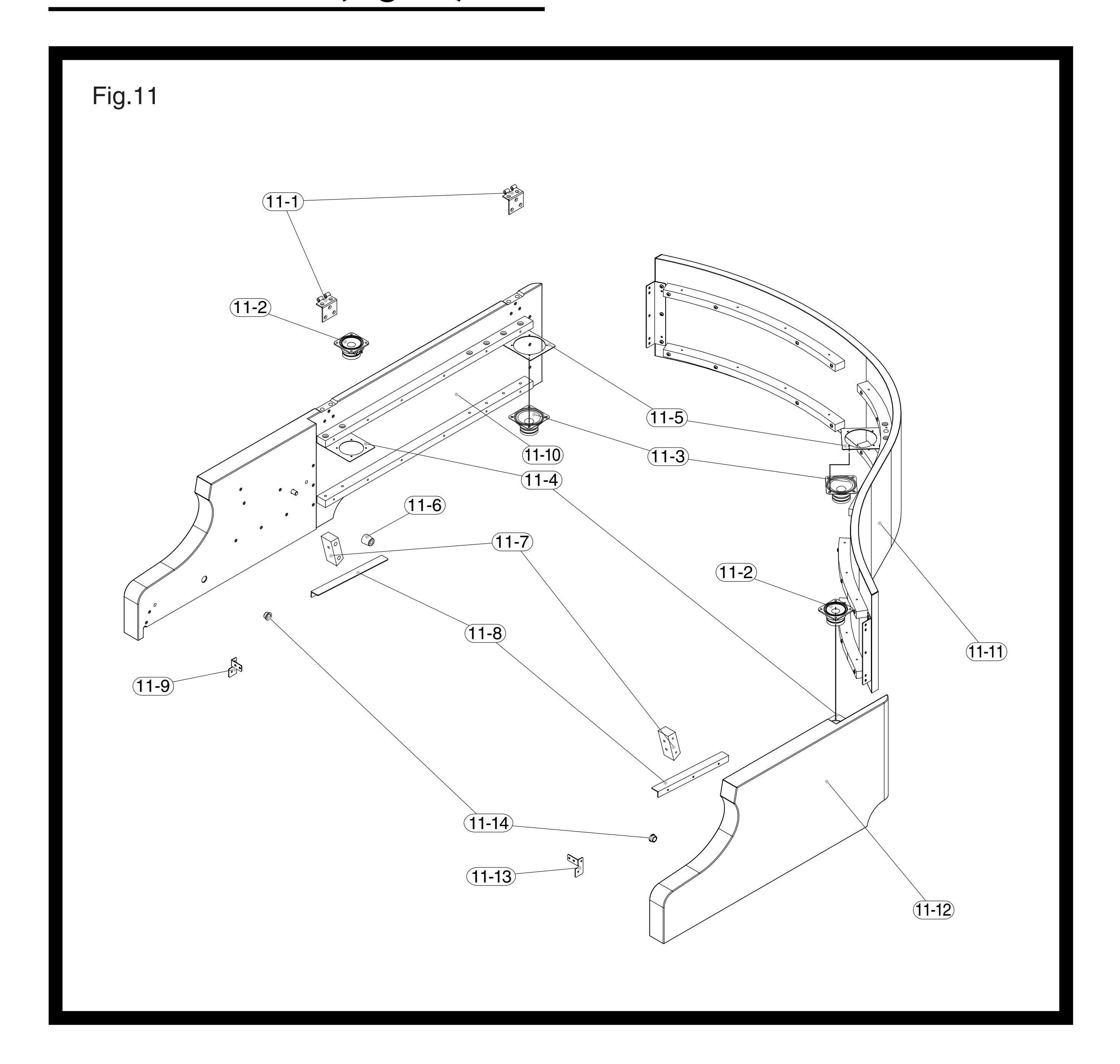
Fig.10

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
10	72234667	PEDAL ASSY TOTAL		1
	NOTE: 'PEDAL ASSY TOTAL' includes the following parts.			
10-1	********	PEDAL TOP BLOCK		1
10-2	02019923	POST CUSHION		2
10-3	********	PEDAL BOX		1
10-4	22245308	PEDAL BOARD FELT	224-308	3
10-5	********	PEDAL HOLDER		1
10-6	72121012	AD PEDAL UNIT		1
10-7	03124678	PEDAL STAY		2
ad	40013012	SCREW M4X10	PAN W SEMS FE BZC	4
ah	40126267	SCREW M4X16	PAN MACHINE W/SW+PW BZC	2

View 1 / Bottom

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
ad	40013012	SCREW M4X10	PAN W SEMS FE BZC	4
al	40345167	SCREW M5X20	PAN MACHINE W/SW+PW BZC	2

EXPLODED VIEW (Fig.11) 1/2

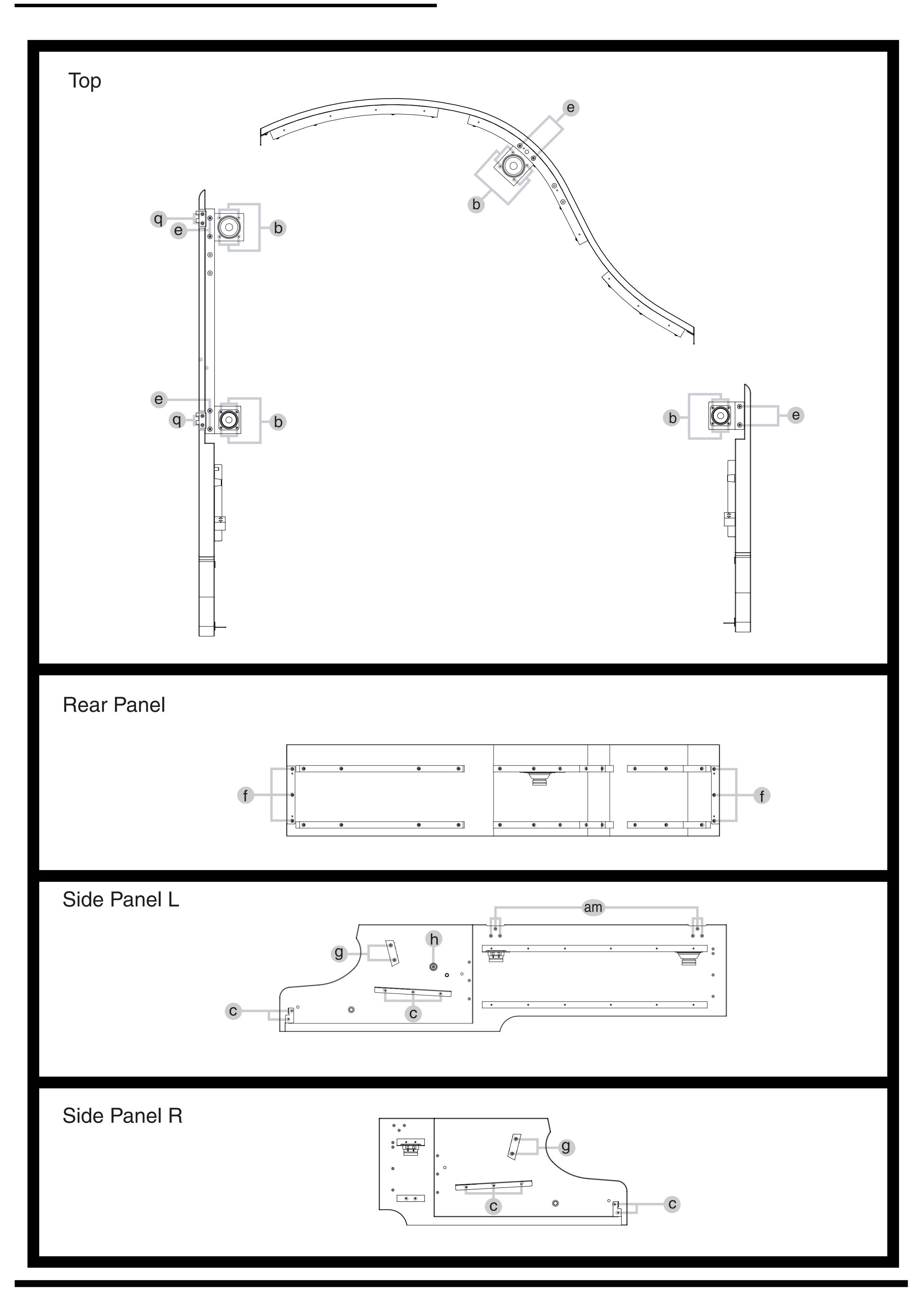


EXPLODED VIEW PARTS LIST (Fig.11-1)

Fig.11

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
11-1	01891067	TOP BOARD HINGE		2
11-2	01348434	TWEETER	TW-5105C	2
11-3	00458190	FULL-RANGE SPEAKER	PD-8150A 8OHM/15W	2
11-4	01348423	TW HOLDER		2
11-5	01346956	SPEAKER HOLDER		2
11-6	12359110	RUBBER FOOT	235-110	1
11-7	02017212	SIDE PANEL CLEAT E		2
11-8	02017256	LID RAIL		2
11-9	22105115	BLIND ANGLE L	210-115	1
11-10	17041274	SIDE PNL L ASSY	FOR SERVICE	1
11-11	17048677	REAR PANEL ASSY	FOR SERVICE	1
11-12	17041817	SIDE PANEL R ASSY	FOR SERVICE	1
11-13	22105120	BLIND ANGLE R	210-120	1
11-14	03124401	COLLAR BUSHING	F-1210	2

EXPLODED VIEW (Fig.11) 2/2



EXPLODED VIEW PARTS LIST (Fig.11-2)

Top

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
b	40011123	SCREW 4X8	BINDING TAPTITE B BZC	16
e	40128512	SCREW 4X25X20	PAN WASHER HEAD TAPTITE B BZC	8
q	40017623	SCREW M4X15	FLAT HEAD MACHINE BRUSS	4

Rear Panel

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
f	40010634	SCREW 4X16	TRUSS TAPPING A FE ZC	6

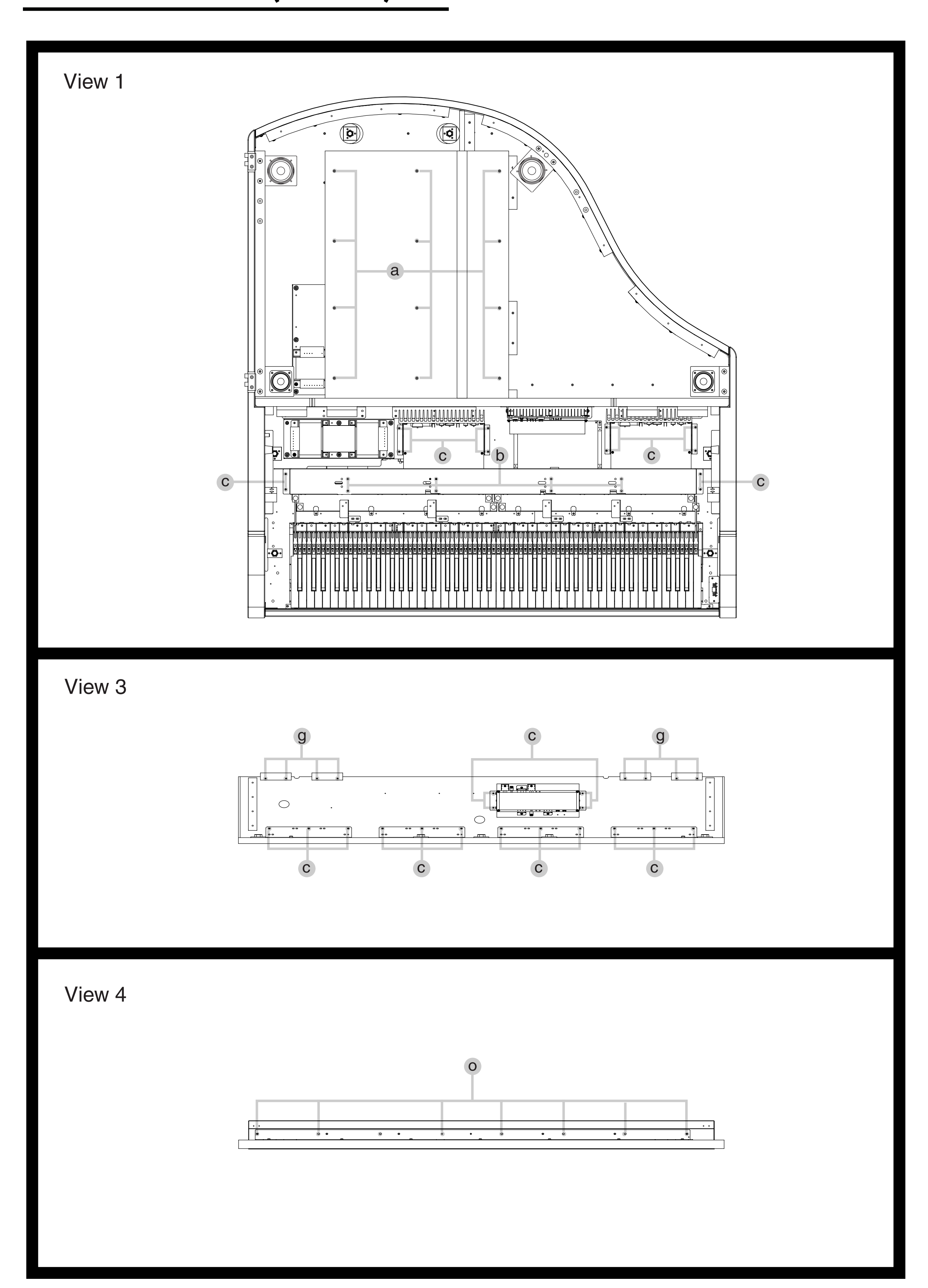
Side Panel L

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
c	40346201	SCREW 4X20	TRUSS TAPPING TWIN BZC	5
g	40019578	SCREW 4X45	TRUSS TAPPING A1 BZC	2
h	40017634	SCREW 4X40	TRUSS TAPPING A BZC	1
am	********	SCREW 3.8X20	FLAT HEAD WOOD BR	6

Side Panel R

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
c	40346201	SCREW 4X20	TRUSS TAPPING TWIN BZC	5
g	40019578	SCREW 4X45	TRUSS TAPPING A1 BZC	2

EXPLODED VIEW (Plain 1)



EXPLODED VIEW PARTS LIST (Plain 1)

View 1

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
a	40012134	SCREW 4X30	TRUSS TAPPING A ZC	12
b	40011123	SCREW 4X8	BINDING TAPTITE B BZC	8
c	40346201	SCREW 4X20	TRUSS TAPPING TWIN BZC	12

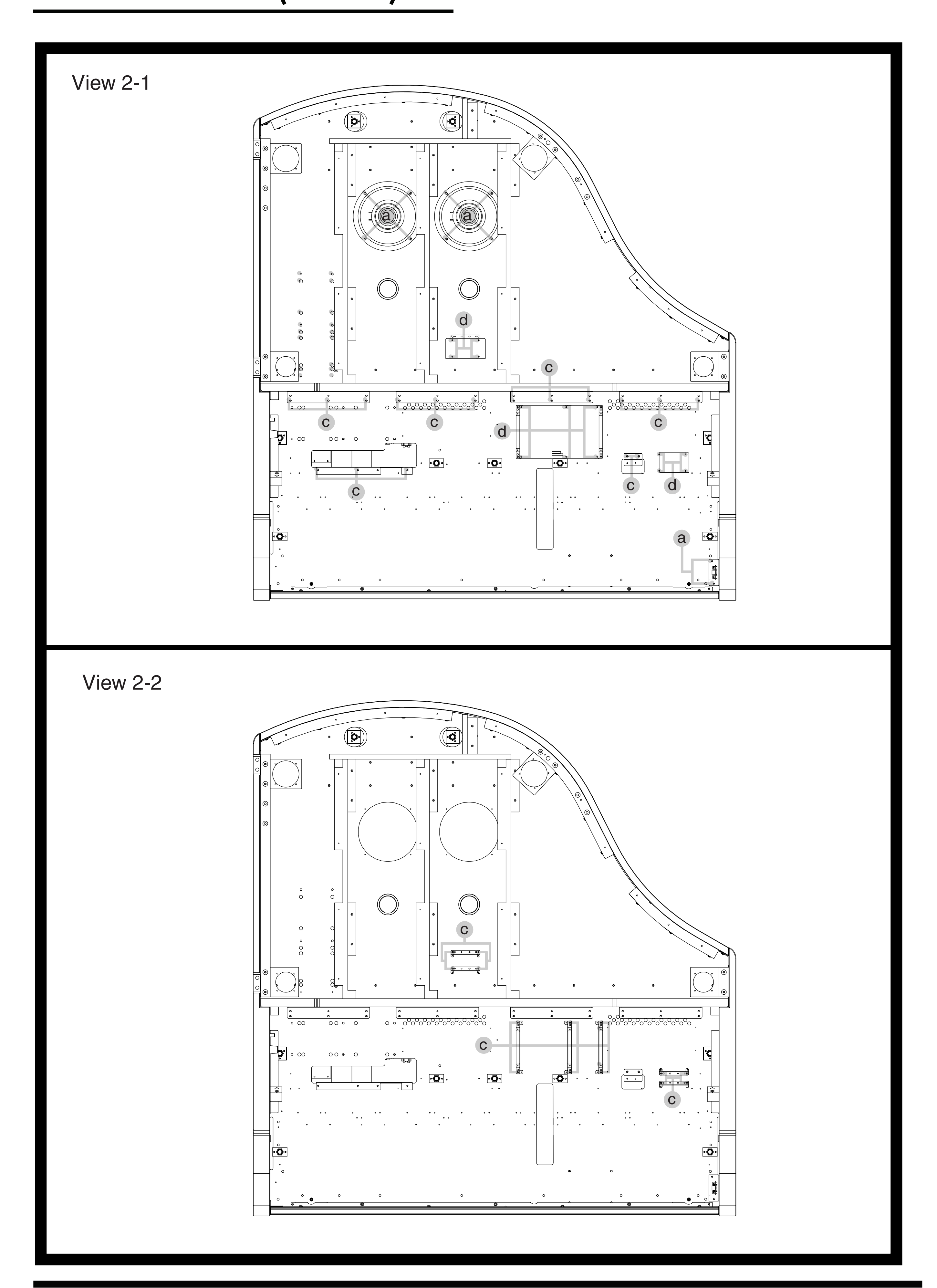
View 3

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
c	40346201	SCREW 4X20	TRUSS TAPPING TWIN BZC	16
g	40019578	SCREW 4X45	TRUSS TAPPING A1 BZC	8

View 4

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
o	40012090	SCREW 4X12	TRUSS TAPPING A1 FE ZC	7

EXPLODED VIEW (Plain 2)



EXPLODED VIEW PARTS LIST (Plain 2)

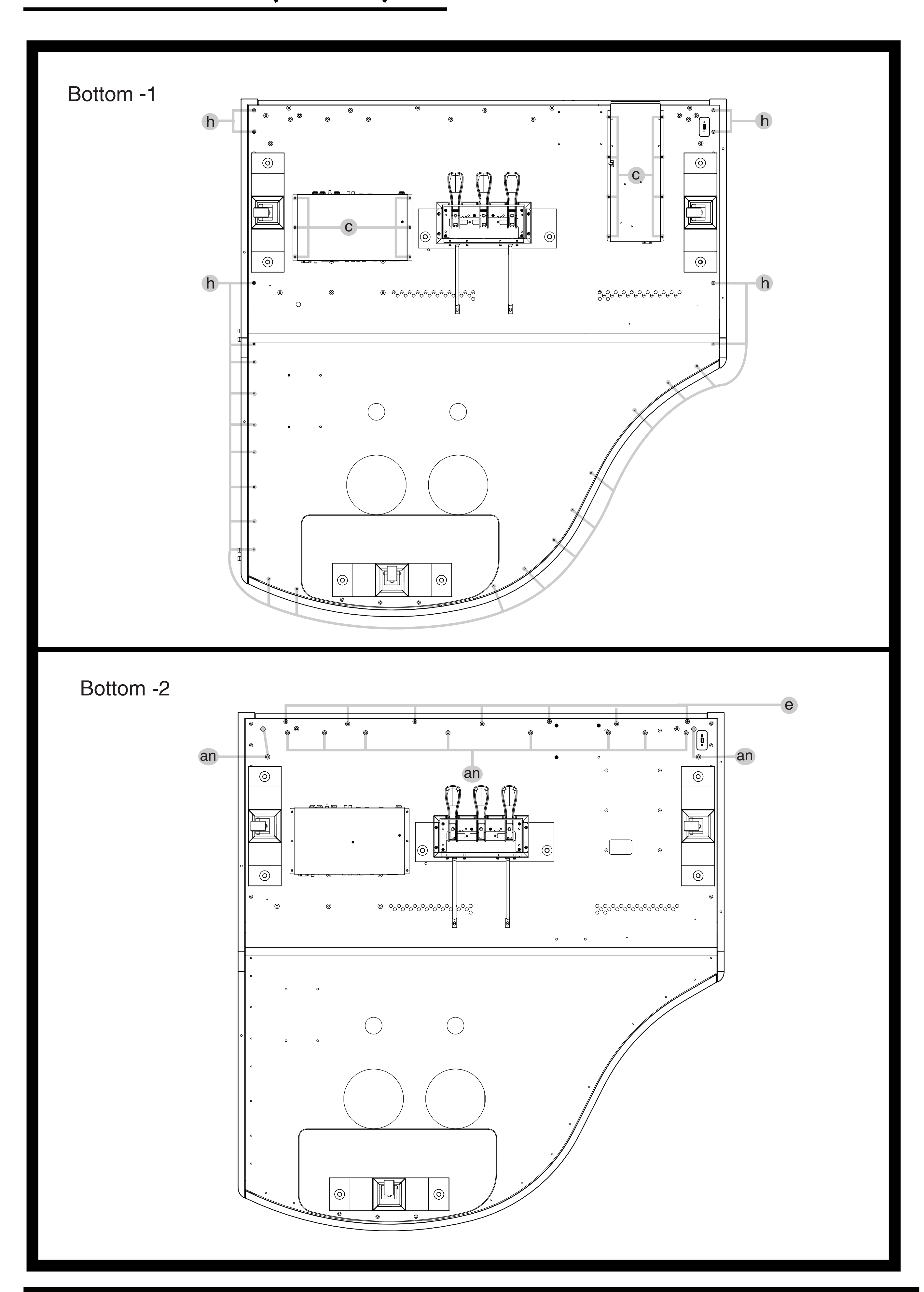
View 2-1

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
a	40012134	SCREW 4X30	TRUSS TAPPING A ZC	2
c	40346201	SCREW 4X20	TRUSS TAPPING TWIN BZC	17
d	40011056	SCREW 3X6	BINDING TAPTITE B ZC	14

View 2-2

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
c	40346201	SCREW 4X20	TRUSS TAPPING TWIN BZC	14

EXPLODED VIEW (Plain 3)



EXPLODED VIEW PARTS LIST (Plain 3)

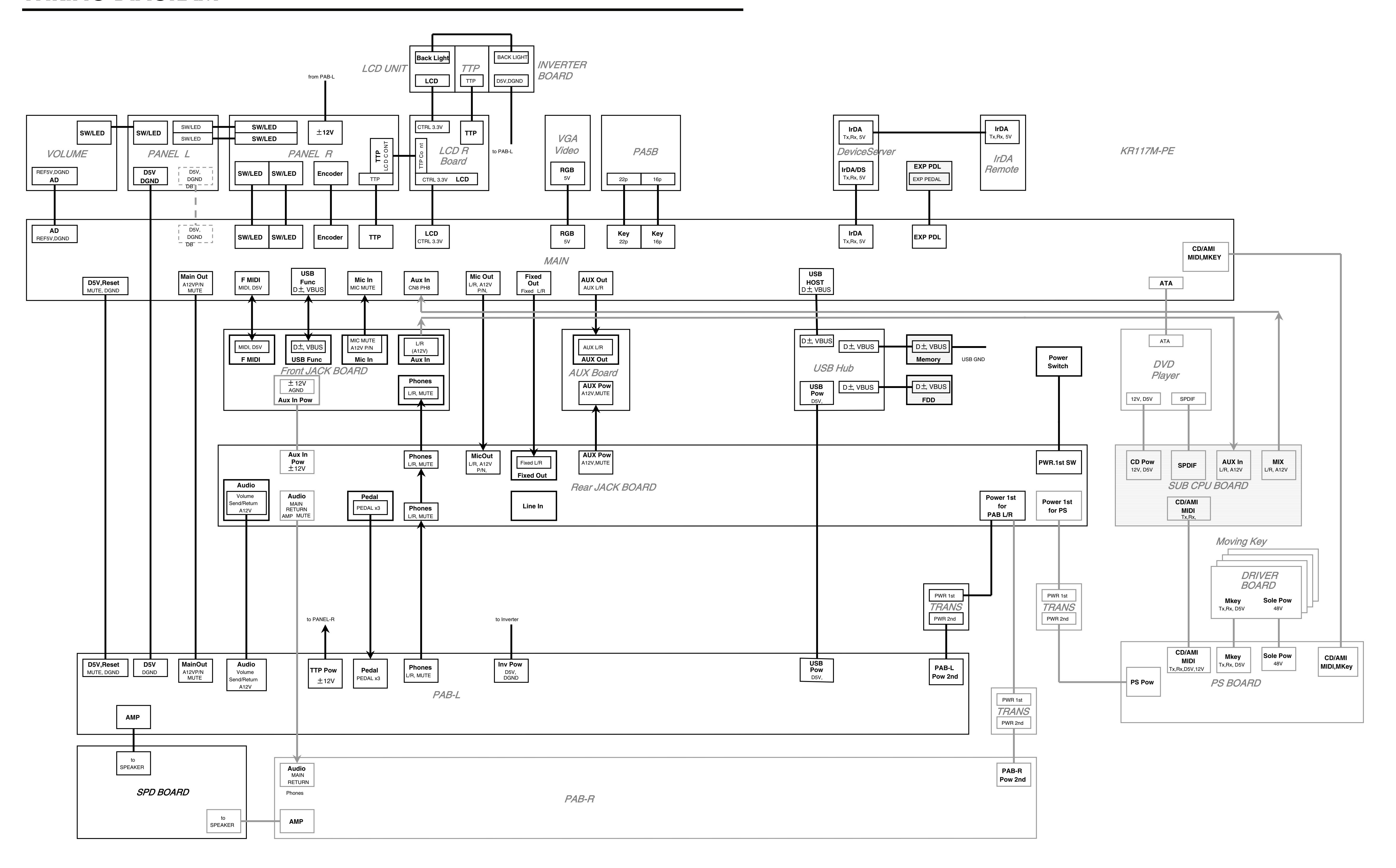
Bottom -1

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
c	40346201	SCREW 4X20	TRUSS TAPPING TWIN BZC	14
h	40017634	SCREW 4X40	TRUSS TAPPING A BZC	25

Bottom -2

No	PART CODE	PART NAME	DESCRIPTION	Q'TY
e	40128512	SCREW 4X25X20	PAN WASHER HEAD TAPTITE B BZC	7
an	40345534	SCREW M4X25	PAN MACHINE W/SW+PW BZC	12

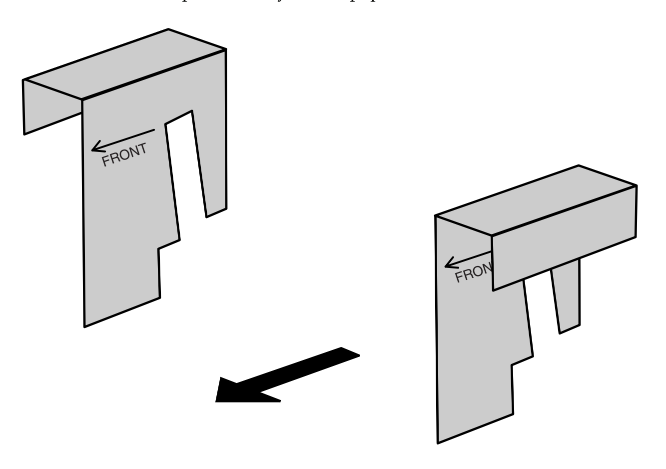
WIRING DIAGRAM



DISASSEMBLY PROCEDURE



To prevent accidents during disassembly of the unit, be sure to carry out the operations with the power switched off and the AC power cord disconnected from the unit. Also, place the unit on an insulator and be sure that operations are performed by two or more persons. When performing detachment, be careful not to damage any nearby components. Transfer the pattern paper for the cover sheet to a piece of vinyl sheet, paper, or the like, and use that.



<1> Enabling Access to the Interior



The operations in this section are a prerequisite for performing the other tasks in this and subsequent sections.

1. Detach the lid.

1. Close the lid and place the unit on the included insulator. Open the front lid and fold down the MUSIC REST ASSEMBLY.

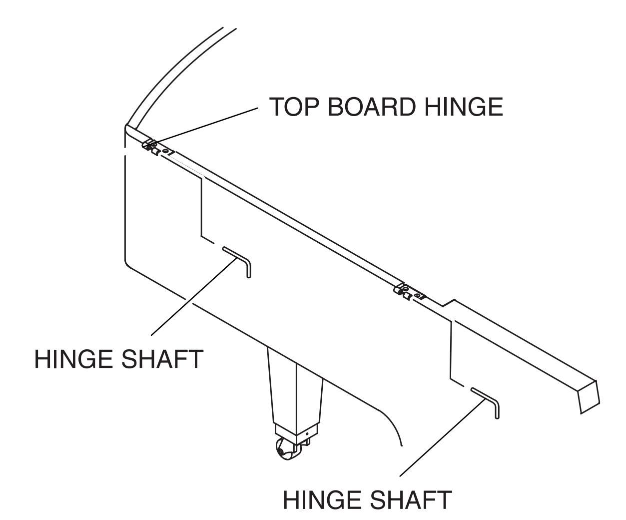


Before placing the unit on the insulator or opening the front lid, be sure to that the lid and the LID are closed.

2. Remove the HINGE SHAFTs (2) retaining the lid.



Be sure to carry out this operation with the lid closed.

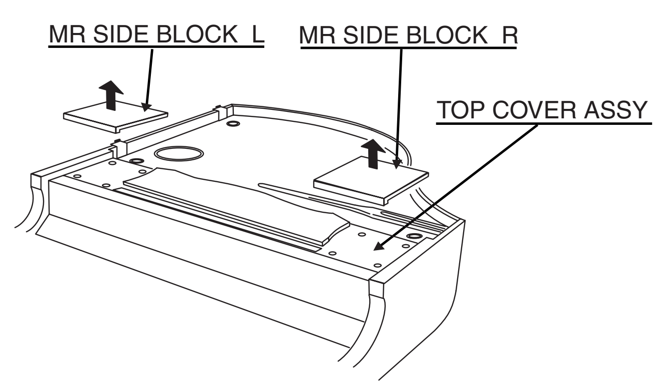


3. After removing the HINGE SHAFTs, detach the lid.

2. Remove the TOP COVER ASSEMBLY.

1. Detach the MR SIDE BLOCK L/R ASSEMBLIES from the TOP COVER ASSEMBLY.

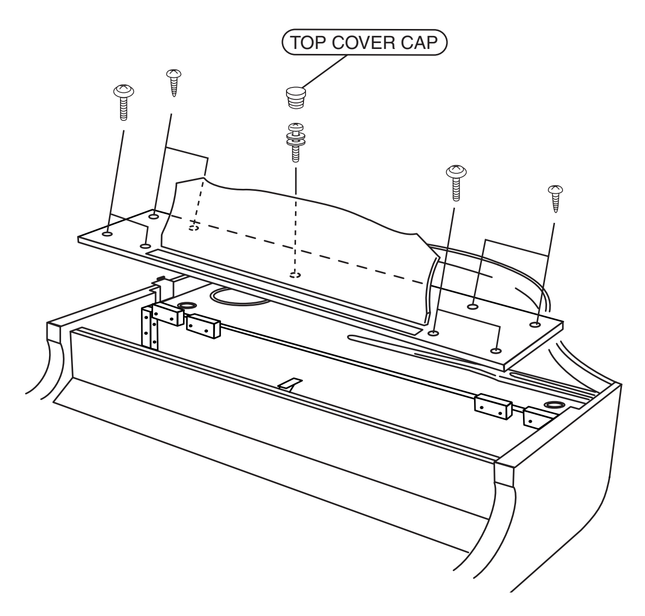
   * *The MR SIDE BLOCK L/R ASSEMBLIES are inserted into the TOP COVER ASSEMBLY.*



2. Detach the TOP COVER CAPs and remove the screws (9 pieces of 3 types).

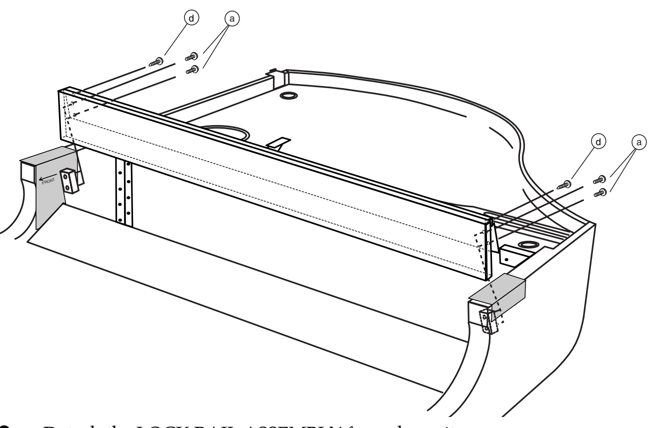


When detaching the TOP COVER CAPs, wind a strong string or the like around each TOP COVER CAP and pull out. (Attempting to use a screwdriver or the like may damage the CAP or the TOP COVER.)



3. Remove the LOCK RAIL ASSEMBLY.

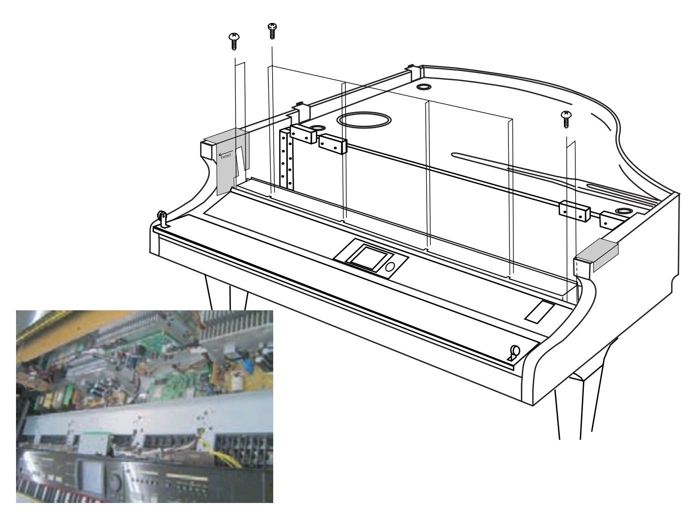
1. remove the screws for the LOCK RAIL ASSEMBLY (6 total, of 2 types -- a and b).

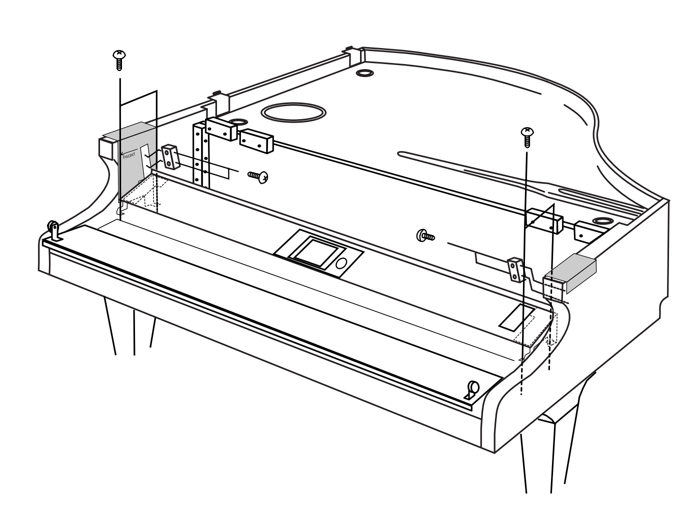


2. Detach the LOCK RAIL ASSEMBLY from the unit.

4. Remove the HAZARD COVER.

1. Remove the screws (12) for the HAZARD COVER.



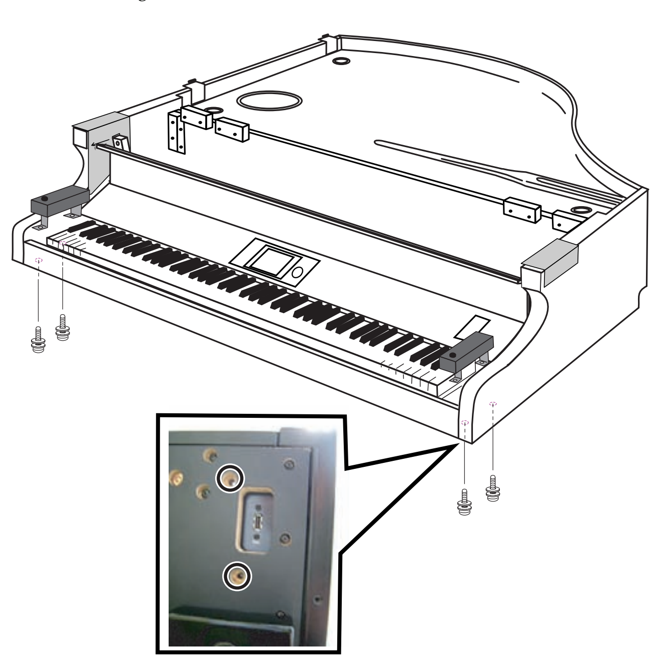


2. Detach the HAZARD COVER from the unit.
3. Internal access is now possible.

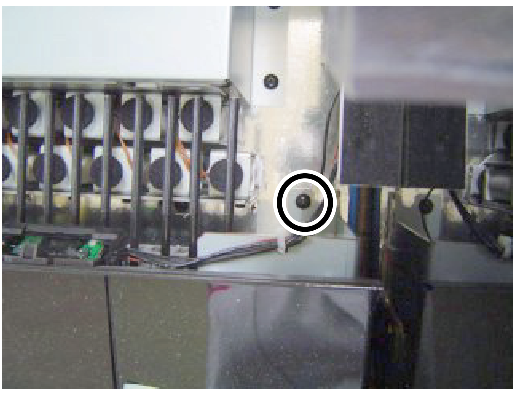
<2> Removing the FRONT PANEL ASSEMBLY

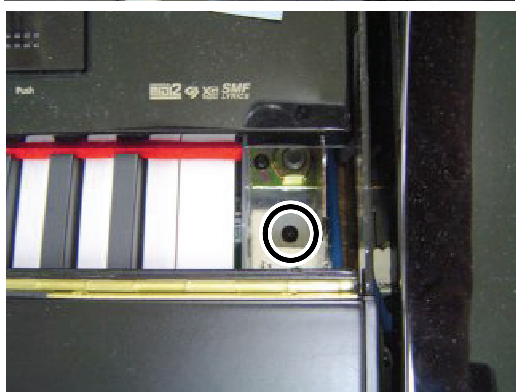
Before attempting the tasks in this section, be sure to carry out the procedures in "Enabling Access to the Interior."

1. Remove the screws for the END BLOCK L/R ASSEMBLIES (2 each on the left and right).

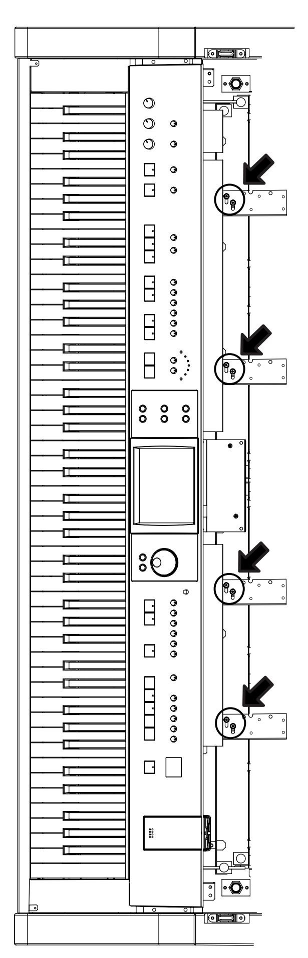


2. Detach the END BLOCK L/R ASSEMBLIES from the unit.
3. Remove the screws for the SIDE PANEL CLEATs E (2 each on the left and right) and detach the SIDE PANEL CLEATs E from the unit.
4. Fold the LID (at the REAR) toward the keyboard, and remove the screws (4) for the FRONT PANEL.



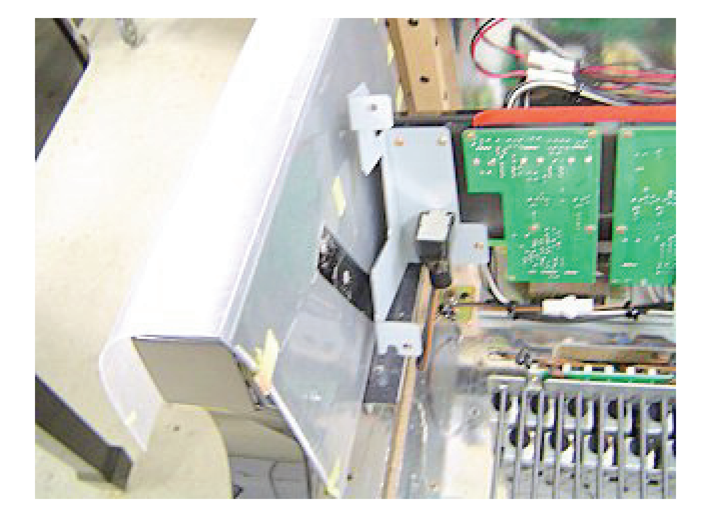


5. Remove the screws (8) for the CENTER HOLDER UPPER.



6. Detach the WIRING connected to the FRONT PANEL ASSEMBLY.

7. The FRONT PANEL ASSEMBLY can now be detached from the unit.



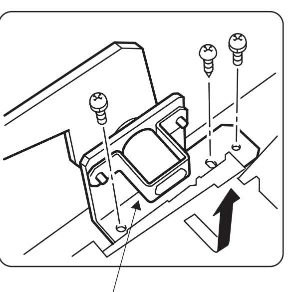
<3> Removing the LID ASSEMBLY

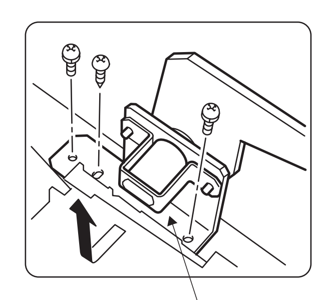
Before attempting the tasks in this section, be sure to carry out the procedures in “Enabling Access to the Interior” and “Removing the FRONT PANEL ASSEMBLY.”

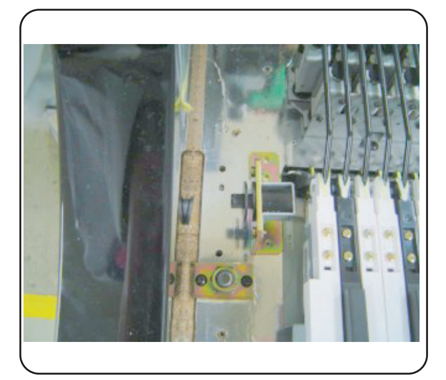
* *Do not remove the LID ARMs.*

1. Fold the LID (at the REAR) toward the keyboard.

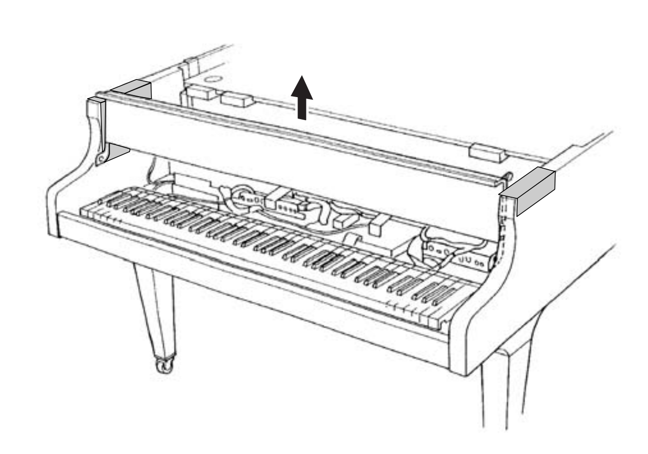
2. Remove the screws securing the DAMPER HOLDERs L/R in place (3 each on the left and right).











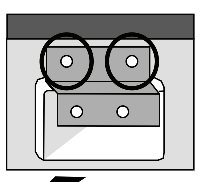
3. Move the DAMPER HOLDERs L/R toward the keyboard and pull out from the LID ARMs.

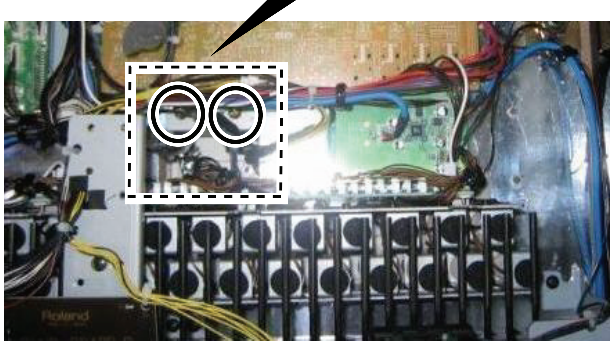
4. The LID ASSEMBLY can now be detached from the unit.

<4> Removing the CD CASE

Before attempting the tasks in this section, be sure to carry out the procedures in “Enabling Access to the Interior.”

1. Loosen all WIRING going into the CD CASE from inside the unit. (Remove COATING CLIPs and INSULOK TIEs.)
2. Remove the CD CASE HOLDER screws (2) from inside the unit.

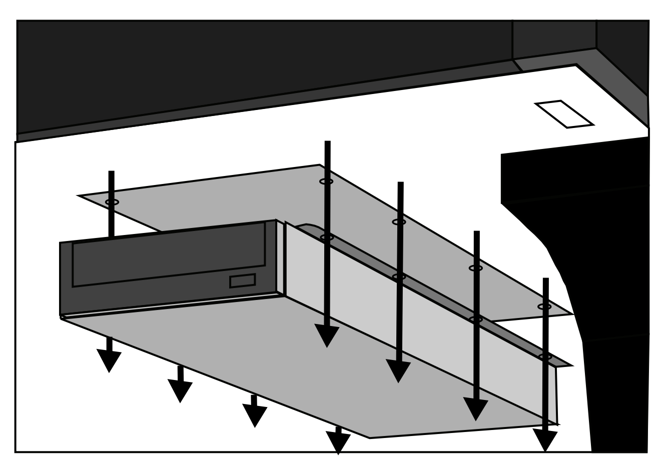




3. From under the unit, remove the screws (8) for the CD CASE.



Because the CD CASE will fall when the screws are removed, be sure to carry out this operation with one person supporting the CD CASE.



4. Remove the CD CASE COVER and the screws (3) from the CD CASE.

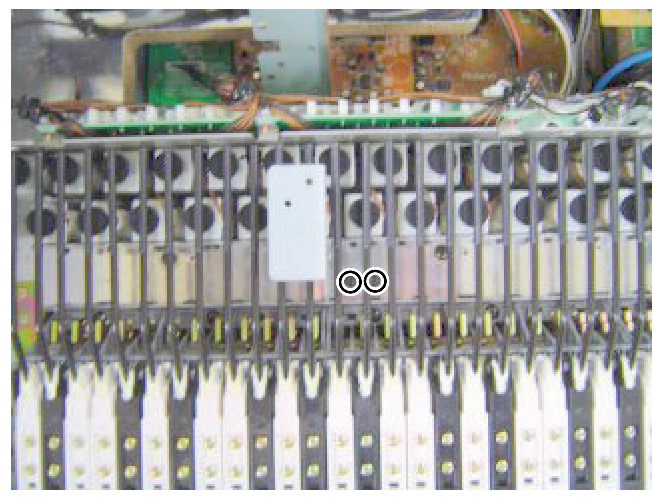


5. Detach the WIRING between the unit and the interior of the CD CASE.
6. The CD CASE can now be detached from the unit.

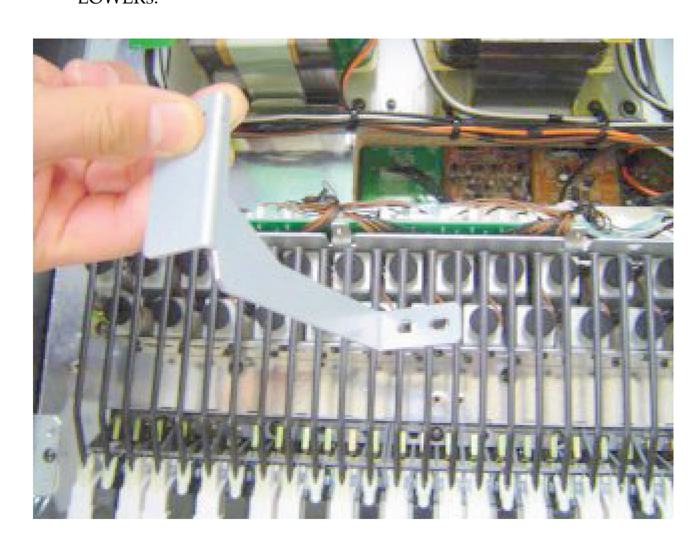
<5> Removing the Keyboard

Before attempting the tasks in this section, be sure to carry out the procedures in “Enabling Access to the Interior,” “Removing the FRONT PANEL ASSEMBLY,” “Removing the LID ASSEMBLY,” and “Removing the CD CASE.”

1. Remove the MAIN BOARD circuit cards (CN38 and CN39).
2. From inside the unit, remove the screws (2 each) for the CENTER HOLDER LOWERs (4).

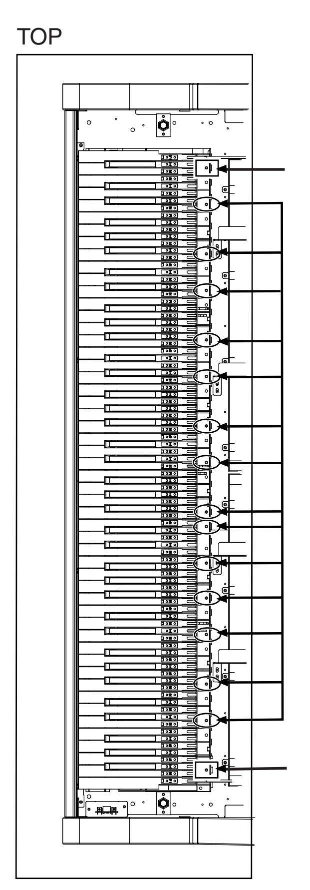


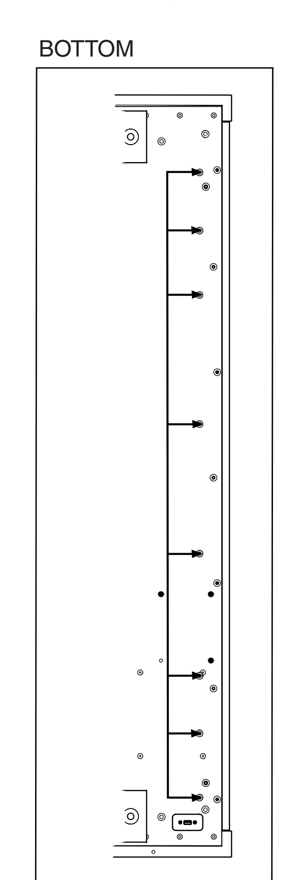
3. From the gap between the keyboard arm, remove the CENTER HOLDER LOWERs.



4. Inside the unit, remove the keyboard retainer screws (16 of two types).

5. Under the unit, remove the keyboard retainer screws (8).





6. While lifting the arm side, slide slightly toward the solenoid and slowly stand the keyboard unit upright.

7. Remove the flat cable(ban card) inside the keyboard unit.

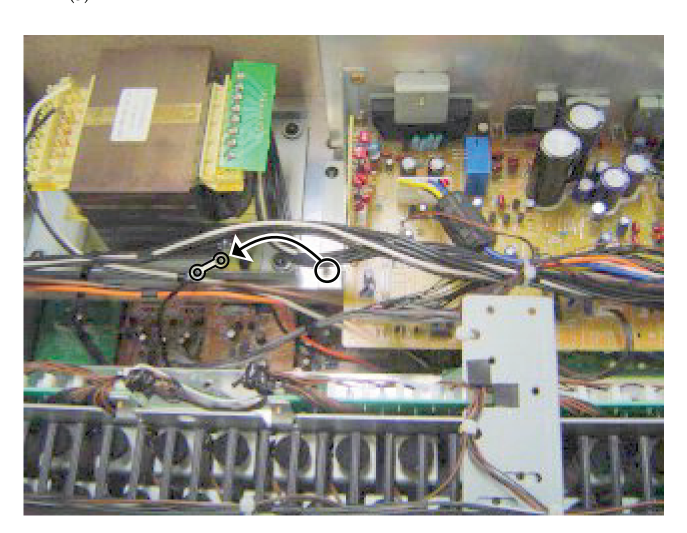
8. The keyboard unit can now be detached from the unit.

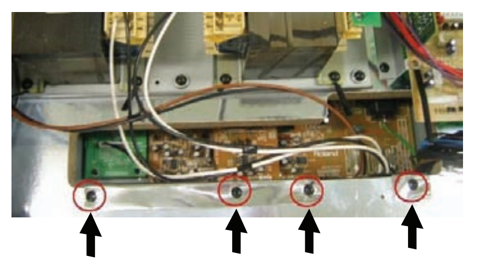
<6> Removing the JACK CASE

Before attempting the tasks in this section, be sure to carry out the procedures in “Enabling Access to the Interior.”

1. Loosen all WIRING going into the JACK CASE from inside the unit. (Remove COATING CLIPs and INSULOK TIEs.)

2. From inside the unit, remove the shield sheet, ground wire, and screws (5).

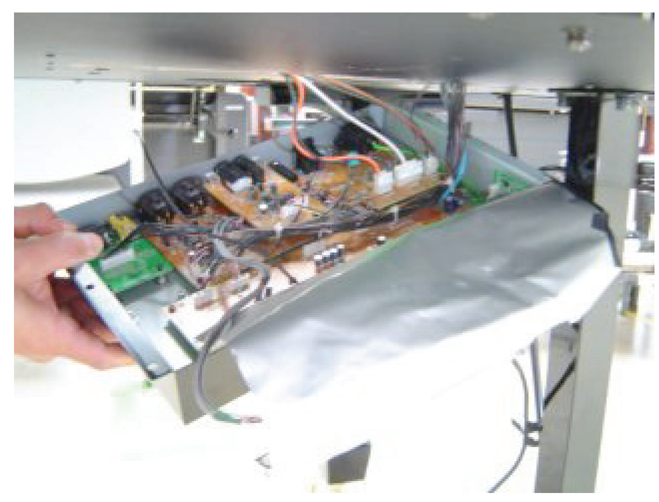




3. From under the unit, remove the JACK CASE screws (6).

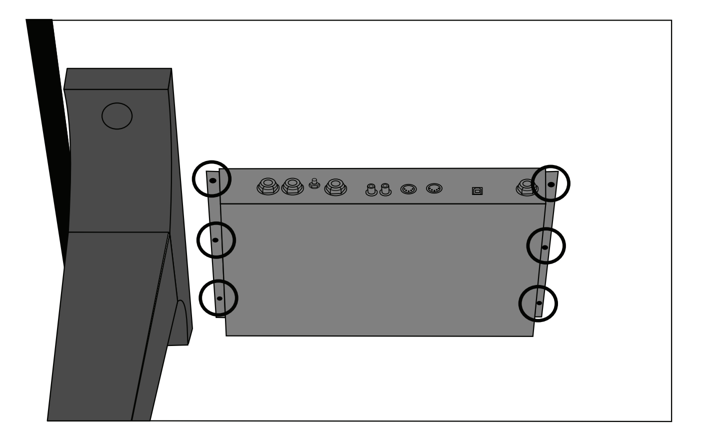


Because the JACK CASE will fall when the screws are removed, be sure to carry out this operation with one person supporting the JACK CASE.



4. Detach the WIRING between the unit and the interior of the JACK CASE.

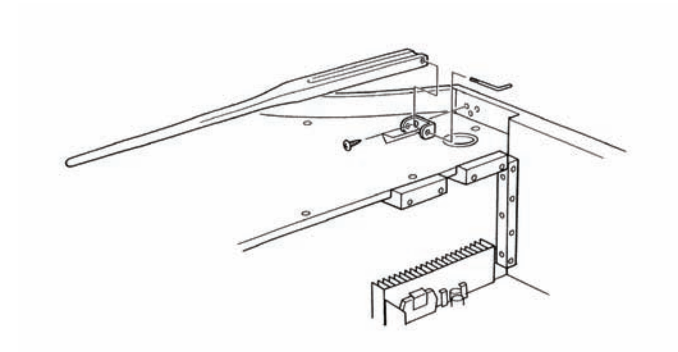
5. The JACK CASE can now be detached from the unit.



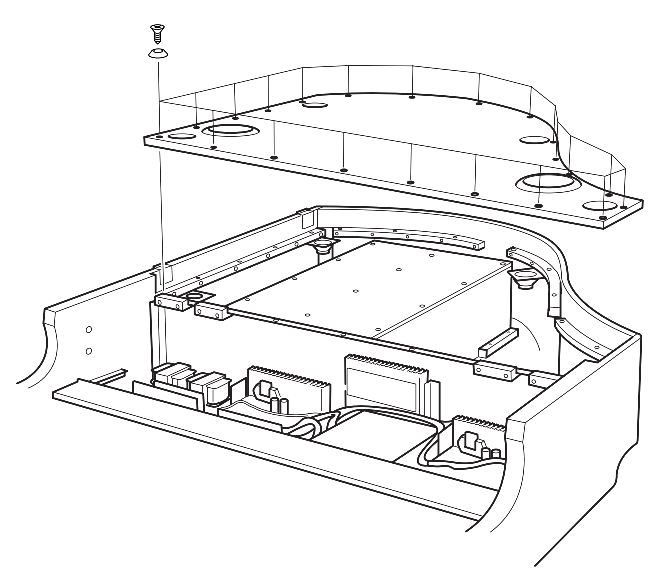
<7> Removing the Speakers

Before attempting the tasks in this section, be sure to carry out the procedures in “Enabling Access to the Interior.”

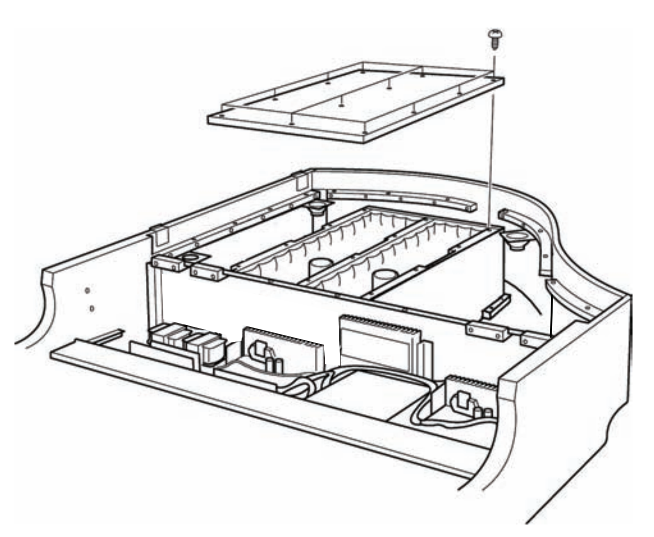
1. Extract the SHAFT from the PROP STAY and detach the PROP ASSEMBLY.
2. Remove the PROP STAY screws (3) and detach the PROP STAY.



3. Remove the SOUND BOARD ASSEMBLY screws (21).

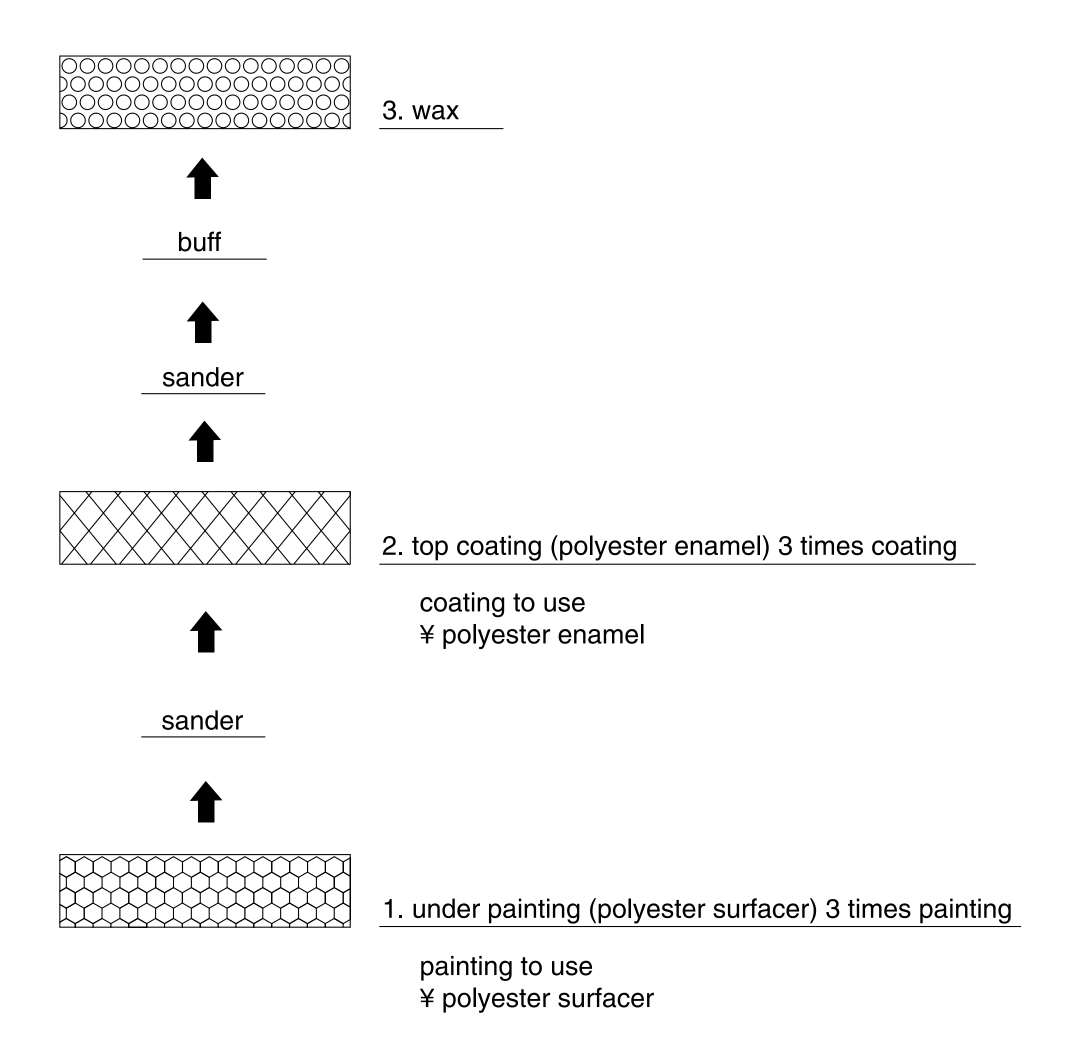


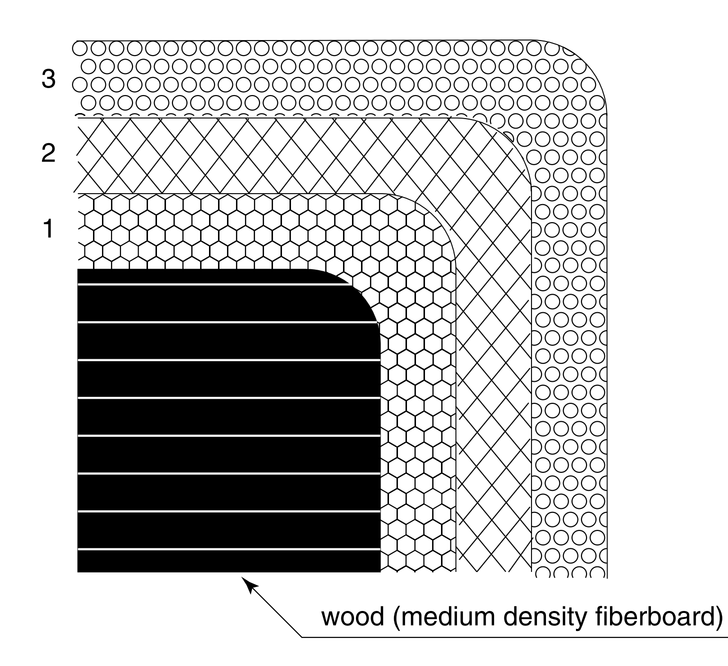
4. Detach the SOUND BOARD ASSEMBLY from the unit.
5. The FULL-RANGE SP (speaker) and TWEETER can now be detached from the unit.
6. Remove the SP BOX BOARD TOP screws (12).



7. Detach the SP BOX BOARD TOP from the unit.
8. The WOOFER can now be detached from the unit.

PAINTING AND COATING METHODS (ABOUT HIGH GLOSS BLACK FINISH)





PARTS LIST

SAFETY PRECAUTIONS:
The parts marked ⚠ have safety-related characteristics. Use only listed parts for replacement.

Due to one or more of the following reasons, parts with parts code ******** cannot be supplied as service parts.

- Part supplied only as a component in a complete assembly
- Copyright does not permit the part to be supplied
- Part is sold commercially

NOTE: The parts marked # are new. (initial parts)

The description "Q'TY" means a necessary number of the parts per one product.

CASING

	Code	Description			Q'TY
	17041261	TOP BOARD SET			1
	NOTE: 'TOP BOARD SET' includes the following parts.				
	********	FRNT TOP BD ASSY			1
#	********	REAR TOP BD ASSY			1
	********	TOP BAR ASSY			1
	04121112	PROP CUP			2
	03125990	PROP CUP SCREW			2
	03124423	LONG HINGE 1462MM			1
	12359103	RUBBER FOOT	SJ-5003		6
	40239112	SCREW 5.1X56	FLAT HEAD WOOD BR		6
	********	NUT M4X10	WOOD ANCHOR E ZC	TOP BOARD HINGE	8
	40342312	SCREW 2.8X10	WOOD ODD TRUSS BRASS		44
	17048681	TOP COVER ASSY	FOR SERVICE		1
	NOTE: 'TOP COVER ASSY ' includes the following parts.				
	********	TOP COVER			1
	01347212	MUSIC REST CUSHION			1
	01346789	MR STOPPER			2
	01347201	MR STOPPER CUSHION			2
	********	HOLDER	PK6A		8
	********	DOWEL PIN 10X30	FOR WOOD		
	01347145	TOP COVER CAP PZ-4			1
	17048682	MR SIDE BLOCK L ASSY	FOR SERVICE		1
	NOTE: 'MR SIDE BLOCK L ASSY' includes the following parts.				
	********	MR SIDE BLK L			1
	********	SIDE BLOCK CUSHION A			3
	********	SIDE BLOCK CUSHION B			1
	********	BUSHING	PK-13-1		4
	17048683	MR SIDE BLOCK R ASSY	FOR SERVICE		1
	NOTE: 'MR SIDE BLOCK R ASSY' includes the following parts.				
	********	MR SIDE BLK R			1
	********	SIDE BLOCK CUSHION A			3
	********	SIDE BLOCK CUSHION B			1
	********	BUSHING	PK-13-1		4
	17048685	MUSIC REST ASSY	FOR SERVICE		1
	NOTE: 'MUSIC REST ASSY' includes the following parts.				
	********	MUSIC REST			1
	01450367	MR HINGE CUSHION			2
	12329175	HINGE B	232-175		3
	22325174	HINGE A	232-174		2
	01347101	MUSIC REST STAY			1
	40342312	SCREW 2.8X10	ODD TRUSS BRASS		15
	17041269	LID ASSY	FOR SERVICE		1
	NOTE: 'LID ASSY' includes the following parts.				
	********	FRONT LID ASSY	BOARD		1
	********	REAR LID ASSY	BOARD		1
	03124412	LID LONG HINGE 1335MM			1
	01346267	BLIND ANGLE			1
	03124345	LID ARM L			1
	03124356	LID ARM R			1
	02017301	LID ARM CUSHION			2
	01234023	LID STAY			2
	12179862	BEARING	217-862		2
	********	NUT M4X10	WOOD ANCHOR E ZC	LID ARM	4
	40342312	SCREW 2.8X10	WOOD ODD TRUSS BRASS		40
	40012090	SCREW 4X12	TRUSS TAPPING A1 FE ZC		4
	40017489	SCREW M4X15	FLAT HEAD MACHINE BZC		4
	40010723	SCREW 3X10	BINDING TAPPING A FE ZC		9

CASING

	Part No.	Description			Qty
	17041816	SOUND BOARD ASSY (WITH MOLE)	FOR SERVICE		1
	NOTE: 'SOUND BOARD ASSY (WITH MOLE)' includes the following parts.				
	40238990	MOLE	40M (CM)		
	02895356	FULL-RANGE SPEAKER	M16DC54		2
#	********	SOUND BOARD			1
	********	SPEAKER COVER L			2
	********	SPEAKER COVER S			4
	********	SPEAKER GRILL S			4
	********	SPEAKER GRILL L			2
	********	SP CUSHION L			2
	********	SP CUSHION S			4
	40127545	SCREW M4X10	TRUSS TAPPING A FE BZC		2
	40011745	HEX NUT M4	SPRING NUT FE ZC		8
	40017378	COATING CLIP	CS-7		2
	17041115	PROP ASSY	FOR SERVICE		1
	NOTE: 'PROP ASSY' includes the following parts.				
#	********	PROP L			1
#	********	PROP R			1
	********	PROP CUSHION L		PROP L	2
	********	PROP CUSHION S		PROP R	2
	********	PROP STAY HINGE			1
	********	PROP SHAFT			1
	04121089	PROP CUSHION B			1
	04121090	PROP CUSHION C			1
	04121101	PROP CUSHION D			1
	17041009	LOCK RAIL ASSY			1
	NOTE: 'LOCK RAIL SET' includes the following parts.				
	********	LOCK RAIL			1
	********	LOCK RAIL LOWER CUSHION			1
	********	LOCK RAIL SIDE CUSHION			2
	12359103	RUBBER FOOT	SJ-5003		2
	17041271	BLIND ASSY			1
	NOTE: 'BLIND ASSY' includes the following parts.				
#	********	BLIND			1
	02129423	BLIND ANGLE			1
	01450301	BLIND CUSHION			2
	17041272	END BLOCK L ASSY	FOR SERVICE		1
	NOTE: 'END BLOCK L ASSY' includes the following parts.				
	********	END BLOCK L			1
	01458223	END BLOCK CUSHION			1
	12359103	RUBBER FOOT	SJ-5003		1
	17041273	END BLOCK R ASSY	FOR SERVICE		1
	NOTE: 'END BLOCK R ASSY' includes the following parts.				
	********	END BLOCK R			1
	01458223	END BLOCK CUSHION			1
	12359103	RUBBER FOOT	SJ-5003		1
#	17041274	SIDE PNL L ASSY	FOR SERVICE		1
	NOTE: 'SIDE PNL L ASSY' includes the following parts.				
	********	SIDE PNL L			1
	********	SIDE PANEL CLEAT A			1
	********	SIDE PANEL CLEAT B			1
	********	NUT M4X10	WOOD ANCHOR E ZC	TOP BOARD HINGE	4
	********	DOWEL PIN 10X30	FOR WOOD		1
	17041817	SIDE PANEL R ASSY	FOR SERVICE		1
	NOTE: 'SIDE PANEL R ASSY' includes the following parts.				
#	********	SIDE PANEL R			1
	********	SIDE PANEL CLEAT C			1
	********	SIDE PANEL CLEAT D			1
	********	DOWEL PIN 10X30	FOR WOOD		1
#	17048677	REAR PANEL ASSY			1
	NOTE: 'REAR PANEL ASSY' includes the following parts.				
	********	REAR PANEL			1
	********	REAR PANEL CLEAT A			2
	********	REAR PANEL CLEAT B			2
	********	REAR PANEL CLEAT C			2
	01346945	REAR PANEL HOLDER L			1
	01450345	REAR PANEL HOLDER R			1
	01347112	REAR PANEL CUSHION			2
	40010634	SCREW 4X16	TRUSS TAPPING A FE ZC		6
	02017212	SIDE PANEL CLEAT E			2
	72234667	PEDAL ASSY TOTAL			1

CASING

	NOTE: 'PEDAL ASSY TOTAL' includes the following parts.				
	********	PEDAL TOP BLOCK			1
	40346178	BOLT M8X30	ZC W/HEX SOCKET		2
	40018256	WASHER 8X26X2.3	FLAT SQUAR LARGE		2
	40012689	SPW M8	ZC		2
	********	PEDAL BOX			1
	02019923	POST CUSHION			2
	22245308	PEDAL BOARD FELT	224-308		3
	********	PEDAL HOLDER			1
	********	PEDAL POST			1
	40013012	SCREW M4X10	PAN W SEMS FE BZC		8
	40345167	SCREW M5X20	PAN MACHINE W/SW+PW BZC		2
	40016512	INSULOK TIE	80M/M T-18S		2
	40016545	LOCKING TOOL FOR INSULOK TIE	SKM-1		2
	72121012	AD PEDAL UNIT			1
	03124678	PEDAL STAY			2
	17041818	BOTTOM BOARD SET	FOR SERVICE		1
	NOTE: 'BOTTOM BOARD SET' includes the following parts.				
#	********	CROSS BLOCK			1
#	********	BOTTOM BOARD			1
#	********	BOARD SPEAKER BOX SIDE			3
#	********	BOARD SPEAKER BOX REAR			1
#	********	BOARD SEPARATION BOARD			1
#	********	BAFFLE BOARD			1
	********	REAR LEG BD ASSY			1
	22275164	SPEAKER COVER			2
	02017101	PA-5 STOP SCREW	STOPPER		2
	********	CROSS BLOCK ANGLE	ANGLE		4
	04017256	SPEAKER BOX TOP	BOARD		1
	01450323	CROSS BLOCK CLEAT			4
	22105115	BLIND ANGLE L	210-115		1
	22105120	BLIND ANGLE R	210-120		1
	04017878	FRONT PANEL	ENGLISH		1
	03895678	PANEL ESCT L	ENGLISH		1
	03895689	PANEL ESCT R	ENGLISH		1
	03782190	IRMC COVER			1
	01459790	DISPLAY ESCT BLK			1
	73011701	USB BOX ASSY			1
	NOTE: 'USB BOX ASSY' includes the following parts.				
	********	USB LID			1
	********	USB BLOCK			1
	********	USB BOX			1
	********	USB SPRING			2
	40122634	GREASE	G-424F 14KG		
	03893345	GREASE	B-NS LATCH		
	04120889	LEG		WITH CASTER	3

CHASSIS

04017323	LCD HOLDER		1
03893334	LCD HOLDER B		2
04017412	CENTER HOLDER UPPER		4
04017445	PANEL HOLDER R		1
04017434	PANEL HOLDER L		1
02892623	DAMPER HOLDER		2
03124278	DAMPER HOLDER L		1
03124289	DAMPER HOLDER R		1
02892645	DAMPER	FYN-N1-L-RL1	1
02892656	DAMPER	FYN-N1-R-RL1	1
04017345	HAZARD COVER		1
01451378	CENTER HOLDER		1
04017423	CENTER HOLDER LOWER		4
02017889	END BLOCK HOLDER		2
00900467	PWB HOLDER		3
02122956	PWB HOLDER		4
01346956	SPEAKER HOLDER		2
01348423	TW HOLDER		2
22205156	HOLDER A		2
04017467	CD HOLDER		1
04017356	TRANS PLATE		2
02017256	LID RAIL		2
04123967	TRANS COVER		1
03895701	USB PLATE		1
04017456	CD CASE		1
04017478	CD CASE COVER		1
04017623	JACK CASE		1

CHASSIS

KNOB, BUTTON

	02016278	Y C-KEYTOP	MD1H BLK		7
	02016445	Y S-KEYTOP	LD1H BLK		2
	02016456	Y S-KEYTOP	LD2H BLK		1
	02016467	Y S-KEYTOP	LD1H RED		1
	02016478	Y S-KEYTOP	LD1H MCG		1
	02896501	Y S-KEYTOP	LX2H MWG		2
	02016489	Y S-KEYTOP	LD1H BRWN		3
	02016490	Y S-KEYTOP	LD1H MWG		1
	02017367	Y S-KEYTOP	LD2H DWG		1
	02784589	Y S-KEYTOP	LD1H LCG (WHYT BRWN GRY)		1
	02674245	F C-KEYTOP	SX2H-A BLK		4
	02016401	Y S-KEYTOP	LX2H BLK		1
	02016289	Y C-KEYTOP	MD2H BLK		2
	02016290	Y C-KEYTOP	MD3H BLK		5
	02016390	Y S-KEYTOP	LX1H BLK		1
	22485303	D R-KNOB(ALPHA-DIAL)	L BLK 248-303		1
	03674590	R R-KNOB	S-ELA BLK/LWG		3
	22495576	A S-BUTTON	249-576 LX BLK		1

SWITCH

	01340290	TACT SWITCH	EVQ11A H=5.0	SW502, SW503, SW501 on DECODE BOARD, SW111, SW107, SW106, SW105, SW103, SW113, SW112, SW102, SW101, SW104, SW115, SW116, SW134, SW135, SW137, SW139, SW114, SW108 on PANEL L, SW12 SW2, SW11, SW13, SW14, SW15, SW16, SW18, SW19, SW20, SW21, SW26, SW10, SW23 on PANEL R	34
	13169711	TACT SWITCH	SKPDALD010	SW120, SW131, SW129, SW128, SW126, SW125, SW122, SW119, SW118, SW132, SW123 on PANEL L,SW6, SW32, SW31, SW30, SW29, SW27, SW4, SW3, SW28 on PANEL R	20
⚠	72902434	POWER SW ASSY			1
	13159187	SLIDE SWITCH	SSSS2-22-01	SW504 on DECODE BOARD	2

JACK, EXT TERMINAL

	03897089	USB CONNECTOR A TYPE FEMALE	YKF45-0031N	JK300 on FRONT JACK	1
	03786745	USB CONNECTOR A TYPE FEMALE	YKF45-0027		1
	03906756	D-SUB CONNECTOR	XM2C-0912-112	CN3 on DEVICESERVER	1
	00340223	DIN SOCKET	YKF51-5031	JK206 on REAR JACK	2
	00679767	XLR CONNECTOR	NC3MAH	JK202,JK201 on REAR JACK	4
	13449275	6.5MM JACK	YKB21-5074	JK702 on AUX, JK200, JK205, JK204, JK203 on REAR JACK	9
	13429676	MIDI CONNECTOR	YKF51-5048N (TWIN)	JK100 on FRONT JACK	1
	01899801	RCA(PIN) JACK	YKC21-3834N	JK102 on FRONT JACK	1
	02781189	USB CONNECTOR B TYPE FEMALE	YKF45-0021	JK101 on FRONT JACK	1
	13449169	6.5MM JACK	YKB21-5078	JK400 on FRONT JACK	1
	13449252	6.5MM JACK	YKB21-5006 (STEREO W/SW)	JK300,JK301 on FRONT JACK	2
	13449253	6.5MM JACK	YKB21-5018	JK701 on AUX	1
	13449148	JACK	YKB21-5009	JK101 on EXP	1
	02232245	RCA(PIN) JACK	RCA(PIN) YKC21-3661	JK201 on VIDEO BOARD	1
	03899545	D-SUB CONNECTOR	KEY-15S-2A3F(LF/SN)	CN202 on VIDEO BOARD	1

DISPLAY UNIT

⚠	17041755	LCD + POSITION SENSOR	KCG057QV1DB-G77 + EMU601A2MA16 (NON ROHS COMPLIANT)		1
	NOTE: Replacement LCD+POSITION SENSOR should be made on a unit base.				
⚠	********	LCD KCG057QV1DB-G77	LCD		1
	********	EMU601A2MA16	POSITION SENSOR		1
#	********	FRAME TAPE H			2
	********	FRAME TAPE V			2

DISK DRIVE UNIT

⚠	03781223	DVD DRIVE UNIT	SR-8589-CRBA		1

SPEAKER, BUZZER

⚠	01017523	W-20143B	WOOFER		2
⚠	01348434	TW-5105C	TWEETER		2
⚠	00458190	PD-8150A 8OHM/15W	FULL-RANGE SPEAKER		2
⚠	02895356	M16DC54	FULL-RANGE SPEAKER		2

KEYBOARD ASSY

	17041752	KEYBOARD ASSY	PA-5C88-A WITH KEY ARM		1
	NOTE: See 'KEYBOARD PARTS LIST' for details.				
⚠	72231645	SOLENOID UNIT ASSY	FOR PA-5A		2
	NOTE: See 'KEYBOARD PARTS LIST' for details.				

PCB ASSY

	73122301	MAIN BOARD ASSY			1
	72901712	USB HOST-A ASSY			1
	72902967	USB HUB BOARD ASSY			1
	73122067	USB HOST-B BOARD			1
	NOTE: 'USB HOST-B BOARD' includes the following parts.				
	04121690	WIRING USB GND			1
	04121712	WIRING WS8		CN300 on FRONT JACK	1
	17041861	LCD R BOARD ASSY	(NON ROHS COMPLIANT)		1
⚠	72896012	INVERTER BOARD ASSY			1
	NOTE: 'INVERTER BOARD ASSY' includes the following parts.				
⚠	03900356	DHE1105B-5VG	EL-INVERTOR TRANS		1
	02017489	INVERTER BOARD COVER			1
	40011056	BINDING TAPTITE B ZC	SCREW 3X6		1
	40017378	COATING CLIP	CS-7		1
	72895990	PANEL BOARD L ASSY			1
	NOTE: 'PANEL BOARD L ASSY' includes the following parts.				
	03899812	WIRING	W22 5X100-P2.0-PHR-SAN-F	CN103 on PANEL L	1
	40122434	DOUBLE-FACED TAPE	#500 W7MM 20M 30P		6
	00453223	LED SPACER	LDS-70G		5
	01906623	LED SPACER	LH-36-8.5		2
	02909034	LED SPACER	LDS-60C		6
	73122078	PANEL BOARD R ASSY			1
	NOTE: 'PANEL BOARD R ASSY' includes the following parts.				
	04122190	WIRING W6	SW/LED		1
	04122201	WIRING W7	SW/LED		1
	03899856	WIRING	W21 8X200-P2.0-PHR-SAN-F	CN7 on PANEL R	1
	02123012	ENCODER HOLDER			1
⚠	73122089	ANALOG PHANTOM R			1
	NOTE: 'ANALOG PHANTOM R' includes the following parts.				
	04122090	WIRING W31	PAB R 2ND		1
	********	ANALOG BOARD R	Assy(Unit)		1
#	********	EQ BOARD R ASSY			1
	03124645	HEATSINK	PAB		1
	01454001	IC HOLDER			1
	22195973	POWER AMP HOLDER	219-973		1
	22195975	TR HOLDER	219-975		1
	00121612	HEATSINK HOLDER (R)			1
	00121601	HEATSINK HOLDER (L)			1
	40013778	FUSE LABEL	T6.3AL250V		1
	40013656	FUSE LABEL	(T800MA/250V)		1
⚠	73017278	ANALOG PHANTOM L			1
	NOTE: 'ANALOG PHANTOM L' includes the following parts.				
	04122101	WIRING W30	PAB L 2ND		1
	********	ANALOG BOARD L	Assy(Unit)		1
#	********	EQ BOARD L ASSY			1
	03124645	HEATSINK	PAB		1
	22195973	POWER AMP HOLDER	219-973		1
	22195975	TR HOLDER	219-975		4
	01454001	IC HOLDER			1
	00121601	HEATSINK HOLDER (L)			1
	00121612	HEATSINK HOLDER (R)			1
	40013778	FUSE LABEL	T6.3AL250V		1
	40013656	FUSE LABEL	(T800MA/250V)		1
	72895978	VOLUME BOARD ASSY			1
	72896190	IRMC BOARD ASSY			1
	72902312	AUX BOARD ASSY			1

PCB ASSY

	Part No.	Description	Spec	Qty
	73121823	EXP PDL BOARD ASSY		1
	73121834	VIDEO BOARD ASSY		1
	73121901	FRONT JACK BOARD ASSY		1
	73016712	DECODE BOARD		1
⚠	73121890	REAR JACK BOARD ASSY 100/117V		1

NOTE: ‘REAR JACK BOARD ASSY 100/117V’ includes the following parts.

Part No.	Description	Spec	Qty
02128090	WIRING	GROUND 150MM W/TWIN HOLE LUG	1
40013756	FUSE LABEL	T4A/250V	2

PCB ASSY 100/117V is exclusively for 100/117V use.
For 230/240V, make the following modifications to this “Low Voltage PWB”
1. Replace fuse to specific one, please refer to following.
2. Affix a following label on the PCB ASSY.

FUSE F1,F2
100/117V:03670523 5ST 4-R 4A/250V
230/240V:03673989 5ST 2-R 2A/250V
FUSE LABEL:40013723 FUSE LABEL

FUSE F3
100/117V:03670512 5ST 5-R 5A/250V
230/240V:12559551 S506 2A T2AL250V
FUSE LABEL:40013723 FUSE LABEL

	Part No.	Description	Spec	Qty
⚠	73121889	PS BOARD ASSY		1

NOTE: ‘PS BOARD ASSY’ includes the following parts.

Part No.	Description	Spec	Qty
03019189	HEATSINK	MOV	1
03129123	RADIATION SHEET	TC-30A TO-3PL	2
40012256	SCREW M3X10	BINDING B-TITE FE ZC	6
40013067	SCREW M3X8	PAN MACHINE W/SW+SMALL PW ZC	5
40017934	SCREW M3X6	PAN MACHINE W/SW+PW(L) FE ZC	5
22150517	STANDOFF M3 L8		5
40017378	COATING CLIP	CS-7	2

Part No.	Description	Spec	Qty
73122034	TRANS BOARD ASSY		1

NOTE: ‘TRANS BOARD ASSY’ includes the following parts.

Part No.	Description	Spec	Qty
03019923	WIRING	TRANS W1	1

Part No.	Description	Spec	Qty
73016756	SPD BOARD ASSY		1
73019890	DEVICE SERVER BOARD		1

IC

	Part No.	Description	Spec	Location	Qty
	00456856	TD62593AP	TRANSISTOR ARRAY	IC103 on PANEL L,IC3 on PANEL R	2
⚠	01344512	UPC24A05HF	IC (REGULATOR)	IC45 on PS,IC14,IC2 on PAB L	3
	01677734	HD74HC04P	IC (CMOS)	IC100 on FRONT JACK	1
	01677745	HD74HC08P	IC (CMOS)	IC2 on PS	1
	01677756	HD74HC138P	IC (CMOS)	IC101 on PANEL L,IC1 on PANEL R	2
	01677801	HD74HC245PV	IC (CMOS)	IC102 on PANEL L,IC2 on PANEL R	2
	03019978	STK402-100	IC (POWER AMP)	IC12 on PAB L,IC12 on PAB R	2
	03122589	PC910LKNSZ0F	IC (PHOTO CUPLR)	IC102 on FRONT JACK	1
	03342178	GP1UM261RK0F	IC		1
	03674012	S-812C33AY-Z-G	REGULATOR		1
	03675801	NE5532AP	IC (BIPOLAR OP)	IC702 on AUX, IC201, IC202, IC204 on REAR JACK	7
	03788756	EPM3064ATC100-10N CK33D	IC (CUSTOM)		1
	15189169	M5223P	IC (OP AMP)	IC40 on PS	3
	15189189	UPC4570HA	IC (BIPOLAR OP AMP)	IC6, IC7, IC8 on PAB L	2
	15189250	M5218AL-TG1Z	IC (BIPOLAR OP AMP)	IC1 on PAB L	1
	15189251	M5218AP-TF0Z	IC (BIPOLAR OP AMP)	IC203 on REAR JACK , IC202, IC201 on EQ L, IC202, IC201 on EQ R, IC103, IC400 on FRONT JACK, IC201, IC202 on PAB L, IC202, IC201 on PAB R, IC4 on PANEL R	9
⚠	15199191	NJM78M12FA	IC (V.REG)	IC43 on PS, IC5 on PAB L, IC5 on PAB R	3
⚠	15199192	NJM79M12FA	IC (V.REG)	IC44 on PS, IC3 on PAB L, IC3 on PAB R	3
⚠	15199259	UPC24A12HF	IC	IC42 on PS	1
	15199904	M51953BL-600Y	IC (RESET)	IC13 on PAB L	1

TRANSISTOR

Part No.	Description	Spec	Location	Qty
15119141	DTA114ESATP	DIGITAL TRANSISTOR	Q106 on PANEL L, Q8, Q6 on PANEL R	3
15119163	RN2227(TPE4.F)	TRANSISTOR	Q100 on FRONT JACK , Q23, Q20, Q15 on PAB L, Q15 on PAB R, Q101, Q104, Q103, Q102, Q112, Q107, Q105 on PANEL L, Q3, Q2, Q4, Q1 on PANEL R	16
15129164	DTC114ESATP	DIGITAL TRANSISTOR	Q113, Q108 on PANEL L	2

TRANSISTOR

	Part No.	Part Name	Description	Location	Qty
	15119132	2SA1015-GR(TPE2.F)	TRANSISTOR	Q3, Q10, Q4 on PAB L, Q11, Q10 on PANEL R	5
	15129151	2SC1815-GR(TPE2.F)	TRANSISTOR	Q54, Q49 on PS, Q2, Q18, Q13, Q9, Q5, Q19 on PAB L, Q7, Q9 on PANEL R	10
	15119615	2SB647CTZ	TRANSISTOR	Q45 on PS, Q17 on PAB L, Q17 on PAB R	3
	15129623	2SD667CTZ	TRANSISTOR	Q47 on PS, Q16 on PAB L, Q16 on PAB R	3
	15139124	2SK363-GR(TPE2.F)	TRANSISTOR	Q6, Q7, Q11, Q12 on PAB L	4
	15129168	DTC124ESATP	TRANSISTOR	Q21, Q22 on PAB L	2
	03784978	2SC5199	TRANSISTOR	Q53, Q43 on PS	2
	15129152	2SC2878-A(TPE2.F)	TRANSISTOR	Q702, Q703 on AUX , Q202, Q200, Q203, Q204, Q205, Q201 on REAR JACK	14

DIODE

	Part No.	Part Name	Description	Location	Qty
	02909456	D1NL20U-5070	RECTIFIER DIODE	D301 on INVERTER	2
	15019126	1SS133 T-77	SWITCHING DIODE	D203, D204, D202, D201, D200 on REAR JACK, D103, D101, D100, D102, D104, D105, D400, D401 on FRONT JACK , D23, D22, D12, D24 on PAB L, D502, D501 on PAB R, D112, D125, D123, D122, D120, D119, D118, D116, D115, D101, D113, D111, D108, D107, D106, D105, D104, D103, D102, D147, D126, D114, D148, D145, D128, D159, D146, D144, D143, D139, D137, D135, D134, D132, D131, D129 on PANEL L, D12, D13, D10, D11, D6, D4, D2, D14, D29, D3, D15, D16, D18, D19, D20, D21, D23, D26, D28, D30, D31, D32, D27 on PANEL R	83
	01904112	SLR-342VCT32 N.P.Q RANK	LED(RED)	LED124, LED125, LED129, LED131, LED132, LED133, LED137, LED122, LED106, LED135, LED104, LED108, LED101, LED121, LED105, LED107, LED114, LED116, LED117, LED118, LED120 on PANEL L, LED18, LED30, LED27,LED26, LED23, LED21, LED19, LED16, LED15, LED6, LED11, LED12, LED13, LED14, LED20 on PANEL R	38
	00909589	LNJ382GKGXE	LED	LED113, LED111, LED110, LED109, LED112 on PANEL L	5
	03893601	SLR343BCT3F	LED	LED143, LED140, LED139, LED141, LED142, LED138 on PANEL L	6
	00127367	SPR-39MVW	LED (RED/GREEN)	LED102, LED103 on PANEL L	2
	15029348	SLR-342MCT32	LED (GREEN)	LED31 on PANEL R	1
	15039159T0	S5688G(TPA3)	RECTIFIER DIODE	D74, D76, D84, D87, D88, D90, D91, D92, D95, D1, D94 on PS , D26, D14, D27, D3, D19, D13, D11, D10, D4, D9 on PAB L, D19, D11, D4, D9, D10, D13 on PAB R	27
⚠	15039166	S2VB20-4001L15 2A/200V	BRIDGE DIODE	D2 on PAB L, D2 on PAB R	2
⚠	15039176	D3SBA20 4A/200V	BRIDGE DIODE	D93, D89 on PS, D1 on PAB L	3
⚠	00348256	D5SBA20-4000	BRIDGE DIODE	D85 on PS, D15 on PAB L, D15 on PAB R	3
	15019428	RD-7.5ESB2-T	ZENER DIODE	D21, D20 on PAB L	2
	15019444	MTZJ T-77 9.1B	ZENER DIODE	D17 on PAB L	1
	15019415	MTZJ T-77 10B	ZENER DIODE	D101, D102 on PS	2

RESISTOR

	Part No.	Part Name	Description	Location	Qty
	13749773T0	SR25TRE 101 J	CARBON RESISTOR	R110 on FRONT JACK, R165, R162, R166, R163, R161, R160, R113, R112, R111, R110, R109, R108, R164 on PANEL L	17
	13749793T0	SR25TRE 681 J 680 OHM 1/4W	CARBON RESISTOR	R709, R718 on AUX , R231, R245 on REAR JACK, R96, R97, R98, R110, R129, R130 on PAB L, R110, R130, R98, R129, R97, R96 on PAB R	22
	13749833T0	SR25TRE 333 J	CARBON RESISTOR	R242, R237 on REAR JACK , R68, R49, R41 on PAB L	10
	13749845T0	SR25TRE104J	CARBON RESISTOR	R716, R713, R714, R711 on AUX , R214,R236, R239, R241, R263, R265, R209, R216, R234, R210, R207, R217 on REAR JACK, R43, R33 on PANEL R	33
	13749765T0	SR25TRE 470 J	CARBON RESISTOR	R120, R115, R116, R117, R119, R121, R122, R118 on PANEL L, R9, R14, R13, R12, R15, R10, R16 on PANEL R	15
	13749797T0	SR25TRE 102 J	CARBON RESISTOR	R271 on PS, R300, R108 on FRONT JACK, R128, R124, R131, R130, R129, R125, R126, R127 on PANEL L, R22, R23, R24, R21, R19, R20, R18 on PANEL R	18
	13749813T0	SR25TRE 472 J	CARBON RESISTOR	R717, R708 on AUX , R100 on FRONT JACK, R32, R38, R25, R28 on PANEL R	7
	13749809T0	SR25TRE 332 J 1/6W	CARBON RESISTOR	R712, R720 on AUX, R235, R212, R256, R248, R226, R225, R213 on REAR JACK, R202, R210, R203, R209 on EQ R, R410 on FRONT JACK, R7, R123, R117, R121 on PAB L, R202, R203, R209, R210, R7 on PAB R, R35 on PANEL R	27

RESISTOR

	13749757T0	SR25TRE 220 J	CARBON RESISTOR	R6, R11 on PANEL R	2
	13749815T0	SR25TRE 562 J	CARBON RESISTOR	R202, R204, R201, R203 on EQ L, R201, R202, R203, R204 on PAB L, R40 on PANEL R	5
	13749807T0	SR25TRE 272 J	CARBON RESISTOR	R27, R29, R37, R30, R26, R31 on PANEL R	6
	04017589	BGR15TX4R3K	MTL.PLATE RESISTOR	R413, R411 on SPD BOARD	2
	04012967	RXEF050	THERMISTOR RESISTOR	R416, R406 on SPD BOARD	2
	13749777T0	SR25TRE 151 J	CARBON RESISTOR	R204, R203, R222, R221, R220, R219, R206, R205 on REAR JACK , R94, R57, R86, R58, R87, R93, R79, R78, R77, R72, R69 on PAB L	27
	13719545T0	SR25TRE 6R8 J	CARBON RESISTOR	R63, R64 on PAB L, R63, R64 on PAB R	4
	13749785T0	SR25TRE 331 J	CARBON RESISTOR	R710, R719 on AUX, R246, R200, R249, R232 on REAR JACK, R406, R405, R112, R119 on FRONT JACK , R37, R38, R39, R46 on PAB L	18
	13749769T0	SR25TRE 680 J	CARBON RESISTOR	R8, R9 on PAB L	2
	13749825T0	SR25TRE 153 J	CARBON RESISTOR	R247, R260, R258, R250, R240, R233, R229, R227, R251, R228 on REAR JACK, R219, R220 on EQ L, R116, R114 on FRONT JACK, R220, R219, R80, R76, R12, R73, R11 on PAB L, R80, R76 on PAB R	31
	13749865T0	SR25TRE 684 J	CARBON RESISTOR	R252, R253, R254 on REAR JACK, R20, R33, R13, R18, R19, R32, R21, R31, R10 on PAB L	15
	13749841T0	SR25TRE 683 J	CARBON RESISTOR	R411 on FRONT JACK, R61, R51 on PAB L	3
	13749849T0	SR25TRE 154 J	CARBON RESISTOR	R67 on PAB L	1
	13749821T0	SR25TRE 103 J	CARBON RESISTOR	R309, R308, R307, R7, R10, R295 on PS, R230, R244 on REAR JACK, R207, R206 on EQ R, R128 on PAB L, R128, R206, R207 on PAB R	14
	13749817T0	SR25TRE 682 J	CARBON RESISTOR	R707, R715 on AUX, R1251, R257, R202, R223, R1227, R201, R218, R243, R238, R224, R208, R211, R215, R262, R264 on REAR JACK, R217, R216, R210, R209 on EQ L, R201, R204, R208, R205, R217, R216, R212, R211 on EQ R, R408, R121, R120, R117, R115 on FRONT JACK, R115, R217, R216, R210, R209, R120, R116, R109, R108, R119, R24, R40, R25, R105, R42, R56, R85, R101, R103 on PAB L, R212, R216, R211, R208, R101, R105, R108, R109, R205, R204, R201, R217 on PAB R	68
	13749839T0	SR25TRE 563 J	CARBON RESISTOR	R84, R83, R92, R91 on PAB L, R91, R92, R83, R84 on PAB R	8
	13749835T0	SR25TRE 393 J	CARBON RESISTOR	R66 on PAB L	1
	01014278	ERDS1VJ331T	CARBON RESISTOR	R1, R2 on PAB L	2
	03019989	ERX2SJR22E	MTL.FILM RESISTOR	R125, R127, R126, R124 on PAB L, R124, R127, R126, R125 on PAB R	8
	13749189	SR50TR 101 J (1/2W)	CARBON RESISTOR	J204, J201 on EQ L, J204, J201 on EQ R , R301, R304, R302, R303 on FRONT JACK , J204, J201 on PAB L, J201, J204 on PAB R	8
	13749819T0	SR25TRE 822 J 1/6W	CARBON RESISTOR	R211, R214, R212, R208, R207, R206, R205, R213 on EQ L, R214, R213 on EQ R, R214, R213, R212, R206, R207, R211, R205, R208 on PAB L, R213, R214 on PAB R	10
	13749831T0	SR25TR 273 J	CARBON RESISTOR	R274 on PS	1
	13749801T0	SR25TRE 152 J 1/6W	CARBON RESISTOR	R280 on PS	1
	13749781T0	SR25TRE 221 J	CARBON RESISTOR	R282 on PS, R105, R106 on FRONT JACK	3
	13749749T0	SR25TRE 100 J	CARBON RESISTOR	R310 on PS	1
	13749843T0	SR25TRE 823 J	CARBON RESISTOR	R293 on PS	1
	02566523	SN16K2CMT 10KOHM F	MTL.FILM RESISTOR	R283, R294 on PS	2
	02904823	RSS3L20 1K OHM J	MTL.OXIDE RESISTOR	R277, R306, R276 on PS	3
	13749823T0	SR25TRE 123 J	CARBON RESISTOR	R220, R219 on EQ R, R220, R219 on PAB R	2
	03785090	EXB28V680JX	RESISTOR-ARRAY		6
	13749787T0	SR25TRE 391J 1/6W	RESISTOR	R266, R269 on REAR JACK	4
	13749791T0	SR25TRE 561 J	CARBON RESISTOR	R267, R268 on REAR JACK	4
	13749811T0	SR25TRE 392 J	CARBON RESISTOR	R402, R401 on FRONT JACK	2
	13749829T0	SR25TRE 223 J	CARBON RESISTOR	R403, R404 on FRONT JACK	2
	13749775T0	SR25TRE 121 J	CARBON RESISTOR	R107, R109 on FRONT JACK	2

POTENTIOMETER

	13289185	RK11K1130 10KB LM1-15	11M/M POTENTIOMETER		1
	13289186	RK11K1130 10KB LM1-15C W/ CLK	11M/M POTENTIOMETER		2
	01344123	EVU F2AE20B53 5KB	9M/M ROTARY POTENTIOMETER	VR1 on PANEL R	1
	01348189	EVJ05HEB1B14 W/NUT W/ KNOB	12M/M ROTARY POTENTIOMETER	VR400 on FRONT JACK	1

CAPACITOR

	13529132	RPE132-901F104Z50	CERAMIC CAPACITOR	C716, C709, C717 on AUX, C188, C196, C20, C186, C211, C208, C207, C201, C192 on PS, C254, C258, C257, C255, C253, C252, C251, C250, C245, C244, C220, C208, C256 on REAR JACK, C101, C414, C415, C413, C301, C300, C122, C121, C118, C104 on FRONT JACK, C301 on INVERTER, C1007, C1017, C1014, C103, C73, C1009, C1010, R113, C1011, C1022 on PAB L, C1022, C1017, C1014, C1008, C1007, C23, C6, C1, C11, C1000, R113, R44 on PAB R, C101, C110 on PANEL L, C9, C4 on PANEL R	85
	02782734	RE3-16V471M-T2	CHEMICAL CAPACITOR	C302 on INVERTER	1
	03344323	RPE2C1H470J2M1Z01A	CERAMIC CAPACITOR		3
	02782723	RC2-50V010M-T2	CHEMICAL CAPACITOR		3
	02891767	RC2-16V100M-T2	CHEMICAL CAPACITOR	C108, C107, C109 on PANEL L, C8, C1, C16, C2 on PANEL R	10
	13549263M0	ECQ-B1H472JF3	CHEMICAL CAPACITOR	C128 on PANEL L	1
	03893801	RPE2C1H821J2M1A01A	CERAMIC CAPACITOR	C11, C17 on PANEL R	2
	03018545	RPE2C1H101J2M1A01A	CERAMIC CAPACITOR	C708, C711 on AUX, C69, C54 on PS, C206, C211, C210, C207 on REAR JACK , C25, C15, C14, C24 on PANEL R	16
	02782712	RC2-35V330M-T2	CERAMIC CAPACITOR	C13, C12 on PANEL R	2
	03019023	RC2-16V330MF1#-T2	CHEMICAL CAPACITOR	C18, C19 on PANEL R	2
	03125023	RPER11H103K2M1A01A	CERAMIC CAPACITOR	C41, C42, C43, C1000, R44, C65 on PAB L, C65 on PAB R	7
	03124990	RPE2C1H330J2M1Y01A	CERAMIC CAPACITOR	C710, C705 on AUX , C222, C236, C224, C219, C209, C205, C201, C232 on REAR JACK , C1018, C1013, C1012, C1019 on PAB L, C1012, C1013 on PAB R	24
	03232167	RPER11H221K2M1D01A	MLT.LAY.CERA	C101, C102 on PAB L, C102, C101 on PAB R	4
	03018523	RPE2C1H100J2M1D01A	MLT.LAY.CERA CAPACITOR	C100 on PAB L, C100 on PAB R	2
	13549277M0	ECQ-B1H683JF3	POLYEST. CAPACITOR	C200, C185, C195, C191 on PS , C34, C57, C96, C95, C61, C58, C27, C12, C18, C25, C52, C26, C56, C48, C55, C29, C28 on PAB L, C48, C25, C34, C26, C27, C52 on PAB R	27
	13549259M0	ECQ-B1H222JF3	POLYEST. CAPACITOR	C302, C303, C304, C305 on FRONT JACK , C75, C76, C97, C98 on PAB L, C98, C97, C76, C75 on PAB R	12
	03230345	ECQE1A473JF	M.POLYEST CAPACITOR	C5, C10, C44 on PAB L, C44, C10 on PAB R	5
	01239390	ECQV1H334JL3	M.POLYEST. CAPACITOR	C203, C204, C205, C206 on EQ R , C13, C14, C19, C20 on PAB L, C206, C55, C56, C57, C58, C203, C204, C205 on PAB R	12
	04124678	RJ4-16V682MJ8#	CHEMICAL CAPACITOR		1
	13649696	ECA1VM222 2200UF/35V	CHEMICAL CAPACITOR	C32, C24 on PAB L, C32, C24 on PAB R	4
	02895378	RE3-35V101MB-T2	CHEMICAL CAPACITOR	C100 on FRONT JACK , C60, C59, C1023, C1024 on PAB L	5
	02782934	RE3-35V330ME3#-T2	CHEMICAL CAPACITOR	C202, C201 on EQ L, C202, C201 on EQ R, C50, C85, C92, C49, C86, C47, C91, C201, C202, C87 on PAB L, C202, C86, C201, C85 on PAB R	14
	03897701	EEUTA1H3R3	CHEMICAL CAPACITOR		4
	02782890	RE3-16V331MB-T2	CHEMICAL CAPACITOR	C94, C104, C9 on PAB L	3
	02782901	RE3-50V010MB-T2	CHEMICAL CAPACITOR	C77 on PAB L	1
	02782923	RE3-35V221MB-T2	CHEMICAL CAPACITOR	C40, C35 on PAB L , C35, C40 on PAB R	4
	03233123	ECEA1VEN330B	CHEMICAL-BP CAPACITOR	C79, C80 on PAB L, C80, C79 on PAB R	4
	02782945	R2B-16V330MB-T2	CHEMICAL-BP CAPACITOR	C63 on PAB L	1
	03128789	ECA63YT3R3KB	CHEMICAL-BP CAPACITOR	C69, C74 on PAB L, C402, C401 on SPD BOARD	2
⚠	00348234	ECOS1HP682BB 6800UF/50V	BLOCK CAPACITOR	C39, C51 on PAB L, C39, C51 on PAB R	4
	13549274M0	ECQ-B1H393JF3	POLYEST. CAPACITOR	C212, C211 on EQ L , C211, C212 on PAB L	2
	13549266M0	ECQ-B1H822JF3	POLYEST. CAPACITOR	C208, C207 on EQ L, C208, C207 on PAB L	2
	01453423	ECQV1H154JL3	M.POLYEST. CAPACITOR	C206, C205 on EQ L , C407 on FRONT JACK, C205, C206 on PAB L	3
	02128567	ECQV1H474JL3	M.POLYEST CAPACITOR	C214, C215 on EQ L, C215, C214 on PAB L	2
	03019990	ECQV1H184JL3	M.POLYEST CAPACITOR	C204, C203 on EQ L, C204, C203 on PAB L	2
	01452189	ECKDBE472ZF	CERAMIC CAPACITOR	C198, C189 on PS	2
	03236190	RPE2C1H331J2M1A01A	MLT.LAY.CERA CAPACITOR	C210, C177 on PS	2
	01908512	ECQE1475KF	POLYEST. CAPACITOR	C234 on PS	1
	02236701	RA2-25V221MC-T2	CHEMICAL CAPACITOR	C193, C197, C202 on PS	3
	02783312	RA2-25V102MC-T4	CHEMICAL CAPACITOR	C194, C190 on PS	2
	02453812	RA2-50V471M-T4	CHEMICAL CAPACITOR	C209, C175, C187 on PS	3
	02782967	RE3-16V682MJ8#	CHEMICAL CAPACITOR	C199 on PS, C22 on PAB L	1
	13669201M0	ECOS1HP472BB	BLOCK CAPACITOR	C179, C184 on PS	2
	13549341	ECQ-B1H101KF3	POLYEST. CAPACITOR	C212, C211 on EQ R, C211, C212 on PAB R	2
	01903401	ECQV1H824JL3	M.POLYEST CAPACITOR	C208, C207 on EQ R, C207, C208 on PAB R	2
	02230667	RA2-35V4R7MT2	CHEMICAL CAPACITOR	C215, C214 on EQ R, C214, C215 on PAB R	2
⚠	01453278	DE2E3KH472MB3B	CERAMIC CAPACITOR	C299 on REAR JACK	2
	13549261M0	ECQ-M1H332JF3 0.0033UF	POLYEST. CAPACITOR	C229, C233 on REAR JACK	4
	13549272M0	ECQ-B1H273JF3	POLYEST. CAPACITOR	C839, C838 on REAR JACK	4
	13549347	ECQ-B1H331KF3 330PF	POLYEST. CAPACITOR	C234, C200 on REAR JACK, C113, C110 on FRONT JACK	6
	01458323	RPEF11H103Z2M1A01A	CERAMIC CAPACITOR	C416, C418 on FRONT JACK	2

CAPACITOR

	13549253	ECQ-B1H681JF3	POLYEST. CAPACITOR	C409 on FRONT JACK	1
	13549343	ECQ-B1H151KF3	POLYEST. CAPACITOR	C402, C401 on FRONT JACK	2
	13549345	ECQ-B1H221KF3	POLYEST. CAPACITOR	C404, C406 on FRONT JACK	2
	01909678	RA2-16V330M-T2	CHEMICAL CAPACITOR	C408, C411, C405, C400 on FRONT JACK	4

INDUCTOR, COIL, FILTER

	12449323	ESD-R-25SD	DATA LINE FILTER		1
	00788123	SFC-4	FERRITE CORE		1
	01455634	ESD-R-25B	FERRITE-CORE		1
	03235601	RFC-10	FERRITE-CORE		1
	00891689	SBT-0260TF	EMI FILTER	R8, R6 on PS	2
	04120945	EXCELSA39	FERRITE-BEAD	L2, L1 on PAB R	2
	03903389	ZJSR5101-333-01	EMI FILTER	FL400, FL401 on FRONT JACK	2

RELAY

⚠	03123567	OSA-SS-212DM3M	RELAY	RL1 on PAB L, RL1 on PAB R	2
⚠	03785578	ALA2PF12	RELAY	RL1 on PS	1

ENCODER

	01905467	EVE GC1 F20 24B	ROTARY ENCODER	EN1 on PANEL R	1

FUSE, FUSE HOLDER

⚠	02906478	5X20 5ST0.8A/250V	FUSE		4
⚠	03670512	5ST 5-R 5A/250V	FUSE		1
⚠	03670523	5ST 4-R 4A/250V	FUSE		3
⚠	03673978	5ST 6.3-R 6.3A/250V	FUSE		4
⚠	03673989	5ST 2-R 2A/250V	FUSE		2
⚠	03903834	5ST 250	FUSE		2
⚠	12559551	S506 2A T2AL250V	FUSE 5X20		2
⚠	12559556	S506 6.3A T6.3AL250V	FUSE 5X20		2
	40013656	FUSE LABEL	(T800MA/250V)		2
	40013723	FUSE LABEL	T2A/250V		3
	40013756	FUSE LABEL	T4A/250V		2
	40013778	FUSE LABEL	T6.3AL250V		2

CONNECTOR

	03013989	B4B-PH-K-S JST(PB FREE)	CONNECTOR	CN702 on AUX, CN203 on REAR JACK , CN301 on INVERTER, CN3, CN4, CN18 on PAB L, CN105 on PANEL L	3
	03013978	B3B-PH-K-S JST(PB FREE)	CONNECTOR	CN9 on PANEL R	1
	03014001	B5B-PH-K-S JST(PB FREE)	CONNECTOR		2
	13369566	B6B-PH-K-S JST(LF)(SN)(6P)	CONNECTOR	CN701 on AUX, CN204, CN205, CN210 on REAR JACK, CN101, CN300 on FRONT JACK, CN1 on PAB L,CN1 on PAB R	13
	03340290	B10B-PH-K-S(PB FREE)	CONNECTOR	CN101 on PANEL L,CN4 on PANEL R	1
	13369564	B12B-PH-K-S JST(LF)(SN)	CONNECTOR	CN102 on PANEL L,CN3 on PANEL R, CN201 on VIDEO BOARD	3
	13369568	JST B3B-PH-K-S(LF)(SN)	CONNECTOR	CN201 on REAR JACK	5
	13369668	S8B-PH-K-S JST(LF/SN)(8P)	CONNECTOR		2
	13369675	S15B PH-K-S JST	CONNECTOR		1
	03565045	08-6210-020-340-800	CONNECTOR		1
	04123090	CFP1504-0401F	CONNECTOR		1
	13369504	B8B-PH-K-S JST(LF)(SN)	CONNECTOR	CN112 on PS, CN202 on REAR JACK, CN504 on DECODE BOARD, CN1, CN2 on DEVICESERVER, CN102 on FRONT JACK	11
	13369541	B10B-PH-K-S(LF)(SN)	CONNECTOR		1
	13369925	53253-0310 (3P)	CONNECTOR	CN207 on REAR JACK,CN503 on DECODE BOARD , CN104 on FRONT JACK, CN12 on PAB L, CN8 on PANEL R	6
	13369928	53253-0610	CONNECTOR	CN206 on REAR JACK, CN400 on FRONT JACK, CN11 on PAB R	7
	13369724	B2P-VH 7A/250V	CONNECTOR	CN114 on PS, CN407, CN404 on SPD BOARD	5
	13369586	B3P-VH	CONNECTOR	CN405, CN406 on SPD BOARD	2
	13369890	B8P-VH(LF)(SN) 7A/250V	CONNECTOR	CN116 on PS, CN9, CN2 on PAB L, CN2, CN9 on PAB R, CN402, CN401 on SPD BOARD	7
	13369913	B4P-VH 4P(LF)(SN) 7A/250V	CONNECTOR	CN502 on DECODE BOARD, CN403, CN408 on SPD BOARD	3
	13369927	53253-0510 (2MM PITCH)	CONNECTOR	CN200 on REAR JACK	3
	13369503	B7B-PH-K-S(LF)(SN)JST	CONNECTOR		1

CONNECTOR

	13369563	B14B-PH-K-S (LF)(SN)JST	CONNECTOR	CN501 on DECODE BOARD	3
	13369567	B4B-PH-K-S JST(LF)(SN)(4P)	CONNECTOR	CN101 on EXP, CN100 on FRONT JACK	6
	01344567	B10B-XH-A	CONNECTOR	CN15 on PAB L, CN15 on PAB R	2
	01344578	10JQ-ST	CONNECTOR	CN201 on EQ L, CN201 on EQ R, CN201 on PAB L, CN201 on PAB R	2
	13369581	B2B-EH JST	CONNECTOR		22
	13369930	53253-0810	CONNECTOR	CN8 on PS	2
	13369516	B9B-PH-KS (LF)(SN)JST	CONNECTOR	CN505 on DECODE BOARD	1
	01908667	22FE-BT-VK-N	CONNECTOR		1
	01908645	16FE-BT-VK-N	CONNECTOR		1
	03905190	GPHA204-2002A31A 20PIN	CONNECTOR		1
⚠	01901745	B2P4-VH 7A/250V	CONNECTOR	CN297 on REAR JACK	2
⚠	13369898	B2P3-VH(LF)(SN) 7A/250V	CONNECTOR	CN299 on REAR JACK	2
⚠	13369899	B4P7-VH 7A/250V	CONNECTOR	CN298 on REAR JACK	2

WIRING, CABLE

	03670212	BAN CARD	FBNCD-P=0.5-K-20-150	1
	02018234	WIRING	W3	1
	03120101	WIRING	WS06	1
	03019890	WIRING	W1	1
	03019889	WIRING	8X650-P3.96-VHR-VHR-F	1
	02344334	WIRING	15X450-P2.0-PHR-PHR-F	1
	02344067	WIRING	12X400-P2.0-PHR-PHR-F	1
	02343890	WIRING	10X500-P2.0-PHR-PHR-F	1
	02343612	WIRING	8X500-P2.0-PHR-PHR-F	1
	04122001	WIRING W2	6X1170-P2.0-PHR-PHR-F	1
	02342145	WIRING	4X800-P2.0-PHR-PHR-F	1
	03129090	WIRING	3X600-P2.0-51065-51065-F	1
	03120290	WIRING	W5	1
	03120289	WIRING	W4	1
	02342089	WIRING	4X500-P2.0-PHR-PHR-F	1
	04122089	WIRING WS9	USB FDD	1
	04122078	WIRING WS7	USB HOST	1
	04122067	WIRING W52	IRDA A	1
	04122056	WIRING W49	FOR R	1
	04122045	WIRING W48	FOR L	1
	02341823	WIRING	3X550-P2.0-PHR-PHR-F	1
	02341812	WIRING	3X500-P2.0-PHR-PHR-F	1
	04122034	WIRING W47	FOR R	1
	04122023	WIRING W45		1
	04122012	WIRING W42	FOR L	1
	02018578	WIRING	7X500-P2.0-PH-PH-F	1
	02123101	BAN CARD	BNCD-P=1.25-K-22-400	1
	03121534	BAN CARD	BNCD-P=1.25-K-16-450	1
	02343634	WIRING	8X600-P2.0-PHR-PHR-F	1
	04122112	WIRING W35		1
	04122834	WIRING	8X350 P2.0-51065-51065-F	1
	03124756	WIRING	TERMINAL1	1
	03019967	WIRING	2X100-P3.96-VHR-VHR-F	3
	02343534	WIRING	8X100-P2.0-PHR-PHR-F	3
	04123156	WIRING W33	CD/AMI MIDI	1
	04122156	WIRING W53	IRDA B	1
	04122178	WIRING WS10	CD/AUX AUDIO	1
	04122189	WIRING WS12	AUX AUDIO B	1
	03789523	WIRING	W26 ATAPI	1
	02343623	WIRING	8X550-P2.0-PHR-PHR-F	1
	04122134	WIRING W26	CD POWER	1
	04122145	WIRING W27	SPDIF	1
	02128090	WIRING	GROUND 150MM W/TWIN HOLE LUG	1
⚠	04121878	WIRING W29	PAB 1ST	1
	02341978	WIRING	4X100-P2.0-PHR-PHR-F	1
	02342101	WIRING	4X600-P2.0-PHR-PHR-F	1
	02342167	WIRING	4X900-P2.0-PHR-PHR-F	1
	04121912	WIRING WS4	MIC OUT	1
⚠	04121812	WIRING W24	POWER SW	1
	04121901	WIRING WS3	MIC IN	1
	04121767	WIRING W17	12X1000-P2.0-PHR-PHR-F	1
	03789589	WIRING	WS12 PHONES	1
⚠	04121889	WIRING W39	PS 1ST	1
	04121934	WIRING WS6	AUX OUT	1
	04121834	WIRING W28	5X360-P2.0-51605-561065-F	1
	04121989	WIRING WS16	PHONES	1
	04121890	WIRING WS2	USB FUNC	1
	04121923	WIRING WS5	FIX	1
	04121945	WIRING WS11	AUX AUDIO A	1
	04121978	WIRING WS15	PABR	1
	04121956	WIRING WS14	SEND/RETURN	1
	03902101	WIRING	GROUND 200MM	1

TRANSFORMER

⚠	03900356	DHE1105B-5VG	EL-INVERTOR TRANS		1
⚠	04010623	UNIVERSAL	TRANSFORMER		2
⚠	03122601	UNIVERSAL	POWER TRANS		1

AC INLET, OUTLET

⚠	00125023	PWI1818 (INL-7) 10A/250V 3P	AC INLET	JK299 on REAR JACK	2

SCREW

	00236756	NUT B			4
	02017090	NUT	CKK10		5
	03124478	OILES WASHER	80W-12		4
	04122467	HEX SOCKET SCREW	XM2Z-0023		2
	40010678	SCREW 4X20	TRUSS TAPPING A FE BZC		26
	40011067	SCREW 3X8	BINDING TAPTITE B FE ZC		176
	40011123	SCREW 4X8	BINDING TAPTITE B BZC		4
	40012145	SCREW 4X14	TRUSS TAPPING A BZC		2
	40013001	SCREW M4X8	PAN MACHINE W/SW+PW BZC		12
	40019990	SCREW M4X20	SEMS. PAN HEAD FE BZC		2
	40239045	BOLT	METAL FASTENER MALE		8
	40239089	HEX SCREW 8X50	TPA WITH FRANGE CM		12
	40345123	SCREW M4X35	PAN MACHINE W/SW+PW BZC		12
	40670601	FLAT WASHER	4X13XT1 OXIDATION ZC		12
	03900767	SCREW	KFS-4S-B1WM		2
	40011123	SCREW 4X8	BINDING TAPTITE B BZC		2
	40011312	SCREW 3X8	BINDING TAPTITE P BZC		9
	40013001	SCREW M4X8	PAN MACHINE W/SW+PW BZC		1
	40237101	SCREW M3X8	PAN MACHINE W/SW+SMALL PW BZC		17
	22150756	JACK NUT 2	PLASTIC/BLK		4

PACKING

	03124689	MR PAD			8
	03124690	PROP PAD			4
	04017689	PACKING CASE ISPM			4
	01454845	PACKING SHEET T1X220X750	FOR PACKING		4

MISCELLANEOUS

	01127656	ALUMINUM CLAMP	AL-4		2
	01236067	KEY FELT			1
	01347201	MR STOPPER CUSHION			2
	01347267	TOP COVER CUSHION			2
	01451567	ABSORPTIVE GLASS WOOL			2
	01891067	TOP BOARD HINGE			2
	02017267	LID RAIL CUSHION			2
	02673912	ARM TAPE			88
	03124401	COLLAR BUSHING	F-1210		2
	03124534	PANEL HOLDER CUSHION			4
	03125478	KEY ARM	FE		88
	03569390	TOUCH PANEL CUSHION H			2
	03678801	COLLAR	NG-79-C		12
	03678823	GROMMET	NG-79-C		12
	03890112	INSULATING SHEET INLET			1
	03895712	IRMC CUSHION			2
	03895723	LCD R CUSHION			1
	03903790	CLAMP	AL-8		3
	04017612	SHIELD SHEET			1
	04017678	USB LID CUSHION			1
	04121123	CD PANEL			1
	04121134	CD CUSHION			1
	04123890	PAB8 CUSHION			1
	12189823	FUSE HOLDER	CNT47-0003A	FH7, FH1, FH2, FH3, FH5, FH6, FH9, FH10, FH4, FH8 on PS, FH1, FH6, FH5, FH4, FH3, FH2 on REAR JACK , FH1, FH10, FH9, FH8, FH6, FH4, FH2, FH7, FH3, FH5 on PAB L, FH9, FH8, FH7, FH6, FH5, FH3, FH10, FH4 on PAB R	40
	12199584	GROUNDING TERMINAL	M1698	TER700, TER701 on AUX , TER201, TER200 on REAR JACK, TER101 on EXP, TER100, TER101, TER102 on FRONT JACK , TER4, TER3, TER2, TER1 on PAB L, TER2, TER4, TER1, TER3 on PAB R	20
	12359110	RUBBER FOOT	235-110		1
	21215416	DUCT	121-416		2

MISCELLANEOUS

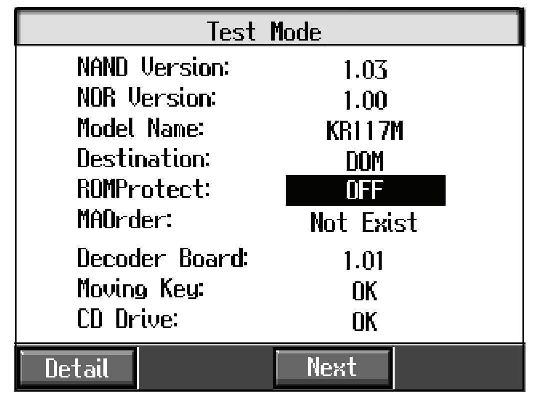
	Part No.	Description	Spec	Note	Qty
	40013723	FUSE LABEL	T2A/250V		3
	40016523	INSULOK TIE 100M/M T-18R	((1000 PCS ORDERING PER))		
	40016534	INSULOK TIE 204M/M	T-18L		
	40016545	LOCKING TOOL FOR INSULOK TIE	SKM-1		
	40017378	COATING CLIP	CS-7		12
	40122434	DOUBLE-FACED TAPE	#500 W7MM 20M 30P		
	40122645	NITTO FILAMENT TAPE	#3883 W19MM 50M 60P (CM)		
	40122812	ACETATE TAPE	NITTO NO.5 BLK W15MM 30M		
	40122923	DOUBLE FACED ADHESHIVE TAPE	NITTO NO.501F W20MM 20M		

ACCESSORIES (STANDARD)

	Part No.	Description	Spec	Note	Qty
	73122478	OWNER'S MANUAL	ENGLISH	WITH QUICK START	1
	02892389	SONGBOOK (NOT FOR SALE)	60 CLASSICAL PIANO MASTERPIECE		1
	03789256	REMOTE CONTROL UNIT	RC-7057		1
	********	BATTERY	R6PSC-2S		2
	40673034	DEMO CD		CD [Music Disc with Vocals]	1
	03902712	PIANO USB DRIVER	CD-ROM		1
	03678701	OWNER'S MANUAL(USB INSTALL)	ENGLISH		1
	40673001	LEAFLET ASSEMBLE(COPY)	JAPANESE/ENGLISH		1
	40238612	SCREW M12X75	HEX SOCKET BZC	LEG, PEDAL	9
	40018212	WASHER 12X26	PLANE BZC	LEG, PEDAL	9
	40018223	SPW M12	BZC	LEG, PEDAL	9
	40126267	SCREW M4X16	PAN MACHINE W/SW+PW BZC	PEDAL STAY	5
	40012345	SCREW 4X10	BINDING TAPTITE B BZC	CORD CLAMP	3
	40346767	CORD CLAMP	N-7 BLACK		4
	40018601	HEX WRENCH #10 BC			1
	12349401	INSULATER	234-401(3PCS/1SET)		1
	03895734	CUP SCREW M3X14	BZC	ANTI-THEFT LOCK SCREWS	1
	22675520	KEY COVER	267-520(#4000 DARK RED)		1
	70905256	MAINTENANCE SET			1
	NOTE: 'MAINTENANCE SET' includes the following parts.				
	40340145	LEAFLET MAINTENANCE SET	(COPY)		1
	22565640	CLOTH	256-640		1
	01235201	PIANO SHAIMY			1
⚠	00894378	AC CORD SET	120V SP301+IS14 SJT18/3		1
⚠	00907001	AC CORD SET	240VE SP-60+IS-14		1
⚠	23495124	AC CORD SET	240VA SC-144-JO1 ES303-10HMA		1
⚠	00894389	AC CORD SET	230V SP22+IS14 H05VV-F3G1.0		1

Confirming the Version

1. Turn on the power to the unit.
2. Hold down the [Play/Stop] and [Track 2] buttons and press the [Sound Control] button.The following type of screen appears, indicating the unit has entered Test mode.



3. Touch the <Detail> button on the screen; the following type of screen appears.

Build etc.
Prog Version/Build: 0.00/0000
Boot Version/Build: 0.00/0.00
SongVersion: ----
DataVersion: ----
StyleVersion: 0.00

4. Press the [Exit] button.
5. To exit Test mode from the version confirmation screen, turn off the power to the unit.

Saving and Loading Data

Data that can be saved to USB memory or Floppy includes the song data stored to the "Favorites"(except for the internal song data), User Styles, and User programs.
The screen data set in the "User screen settings" and the instrument's own internally-stored songs that have been registered to the "Favorites" cannot be saved.



Never turn off the power or eject the external memory from the external memory port while the operation is in progress. Doing so will damage the KR's internal memory, making it unusable.

Copying Songs Saved in Favorites to External Memories

1. Connect the USB memory or Floppy disk drive.

When you use the Floppy disk drive, please insert a formatted disk in the disk drive

2. Press the [Song/File] button.
3. Touch <File> at the bottom in the screen.
4. Touch <Copy>.
5. Touch the arrow icon in the middle of the screen so that the arrow points to External Memory.
6. Touch the <Media> [←] [→] to select the storage media.
7. Touch [←] [→] at the lower right in the screen to select the song you want to copy(save).
8. Touch [↑] [↓] at the right side in the middle of the screen to select the copy destination number for the song.
9. Touch <Execute>.
   Then proceed to repeat Steps 7--9 to save all of the songs stored in the internal memory.



Never turn off the power or eject the external memory from the external memory port while the operation is in progress. Doing so will damage the KR's internal memory, making it unusable.

Copying Styles Saved in the User Memory to External Memories

1. Connect the USB memory or Floppy disk drive.
   When you use the Floppy disk drive, please insert a formatted disk in the disk drive
2. Select and press one of the [User] button in the Music Style.
3. Touch <File> at the bottom in the screen.
4. Touch <Copy>.
5. Touch the arrow icon in the center to point the arrow upwards.
6. Touch the <Media> [←] [→] to select the storage media.
7. Touch [↑] [↓] at the lower right in the screen to select the Music Style you want to copy.
8. Touch [↑] [↓] at the right side in the middle of the screen to select the copy destination number for the Music Style.
9. Touch <Execute>.

Then proceed to repeat Steps 7--9 to save all of the User Styles stored in the internal memory.



Never turn off the power or eject the external memory from the external memory port while the operation is in progress. Doing so will damage the KR's internal memory, making it unusable.

Coping Sets of User Programs Stored in the User Memory to External Memories

1. Connect the USB memory or Floppy disk drive.

When you use the Floppy disk drive, please insert a formatted disk in the disk drive

2. Press the [User Program] button.
3. Touch <File> at the bottom in the screen..
4. Touch <Copy>.
5. Touch the arrow icon in the middle of the screen so that the arrow points to External Memory.
6. Touch the <Media> [←] [→] to select the storage media.
7. Touch [↑] [↓] at the lower right in the screen to select the set of User Programs you want to copy.

8. Touch [↑] [↓] at the right side in the middle of the screen to select the copy destination number for the set of User Programs.

9. Touch <Execute>.

Then proceed to repeat Steps 7--9 to save all of the songs stored in the internal memory.



Never turn off the power or eject the external memory from the external memory port while the operation is in progress. Doing so will damage the KR's internal memory, making it unusable.

Copying Songs on External Memories to Favorites

1. Connect the external memory with the song to be copied to the external memory port.

2. Press the [Song/File] button.

3. Touch <File> at the bottom in the screen.

4. Touch <Copy>.

5. Touch the arrow icon in the middle of the screen so that the arrow turns down (to you).

6. Touch the <Media> [←] [→] to select the copy source storage media.

7. Touch [↑] [↓] at the right side in the middle of the screen to select the song you want to copy.

When "Copy All" is selected, all of the songs within the selected folder on the external memory are copied to Favorites.

8. Touch [↑] [↓] at the lower right in the screen to select the copy destination for the songs.

If you selected "Copy All" in step 7, you don't need to select the copy destination.

9. Touch <Execute>.



Never turn off the power or eject the external memory from the external memory port while the operation is in progress. Doing so will damage the KR's internal memory, making it unusable.

Copying Styles on External Memories to the User Memory

1. Connect the external memory with the Style to be copied to the external memory port.

2. Press the Music Style [User] button.

3. Touch <File>at the bottom in the screen.

4. Touch <Copy>.

5. Touch the arrow icon in the middle of the screen so that the arrow turns down (to you).

6. Touch <Media> [←] [→] to select the copy source media.

7. Touch [↑] [↓] at the right side in the middle of the screen to select the Style you want to copy.

When "Copy All" is selected, all of the Styles within the selected folder on the external memory are copied to user memory.

8. Touch [↑] [↓] at the lower right in the screen to select the copy destination for the Styles.

If you selected "Copy All" in step 7, you don't need to select the copy destination.

9. Touch <Execute>.



Never turn off the power or eject the external memory from the external memory port while the operation is in progress. Doing so will damage the KR's internal memory, making it unusable.

Copying Sets of User Programs on External Memories to the User Memory

1. Connect the external memory with the settings to be copied to the external memory port.

2. Touch the [User Program] button.

3. Touch <File> at the bottom in the screen.

4. Touch <Copy>.

5. Touch the arrow icon in the middle of the screen so that the arrow turns down (to you).

6. Touch <Media> [←] [→] to select the strage media.

7. Touch [↑] [↓] at the right side in the middle of the screen to select the set of User Programs you want to copy.

If "Copy All" is selected, all of the sets of User Programs on the external memory are copied to user memory.

8. Touch [↑] [↓] at the lower right in the screen to select the copy destination for the set of User Programs.

If you selected "Copy All" in step 7, you don't need to select the copy destination.

9. Touch <Execute>.



Never turn off the power or eject the external memory from the external memory port while the operation is in progress. Doing so will damage the KR's internal memory, making it unusable.

Instructions for Factory Reset

Restoring the Factory Settings (Factory Reset)

You can return the content stored with "Memory Backup" and the User Programs to their original factory settings. This operation is referred to as "Factory Reset."

When you perform a Factory Reset, all settings that have been stored in memory up to then are erased and reset to their factory defaults.



Carrying out this procedure does not restore the touch panel calibration settings to their original factory settings.

1. Press the One Touch Program [Arranger] button to display the Basic screen.

2. Press the [Option] button.

3. Touch the <Factory Reset>

The following screen appears.



4. Touch <Execute>.

The confirmation message appears on screen.
Touch <OK> to restore the original factory settings.
When you have finished making the settings, switch off the power, then switch it back on again.
When you touch <Cancel>, the settings are left untouched,and you're returned to the previous screen.



Never turn off the power while the display indicates <Executing...>. Doing so will damage the KR's internal memory, making it unusable.

Caution as to USER DATA

The instrument includes an area of memory to which you can save recorded performances and original Music Styles.
This area is called the "User memory."
The following kinds of data is saved to the User memory.

- Content registered to the "Favorites"
- Content of preferred performance settings that have been saved
- User Styles registered to the Music Styles [User] button
- Screen files set in the "User screen settings"

Initializing the User Memory

To delete the entire contents of the User memory and restore the original factory settings to it, use the following procedure.

1. Press the [Song/File] button.
2. Touch < File >.
3. Touch <Format>.
4. Touch [←] [→] to select "User."
5. Touch < Execute >.

A screen like the one shown below appears.



6. Touch <OK>.
   All of the content in the user memory is deleted
   If you touch <Cancel>, the deletion is cancelled, and you're returned to the previous screen.



Never turn off the power while the display indicates <Executing...>. Doing so will damage the KR's internal memory, making it unusable.



Carrying out this operation does not initialize any settings other than the user memory settings. To restore settings other than those for the user memory to the original factory settings,carry out Factory Reset.

Instructions for Updating the System

Items Required for the Update

The following items are required for installation of the system program to the main body.

- CD-ROM drive and PC with USB HOST interface (OS: Windows 2000/XP or later)
- USB memory (M-UF128)
- Program udpate disc (P/No.17041757)

If using the CD-ROM

- Use the following folders and files on the CD-ROM.

If downloading

- the downloaded file is self-extracting.

In Explorer, double-click the icon, or click Start in the task bar, select "Run," then use Browse to specify the file name and extract the file.
After extraction is completed, the CD-ROM folder is displayed along with the following folders and files below it.

- DATAROM
- PROGRAM
- SCRIPT
- SONG
- STYLE
- FILELIST.txt
- FILELIST_SUM.txt
- VERSION.txt

Use the USB memory to copy these folders and files.

System Update Procedure

* *Save the existing data before carrying out this procedure.*

1. Connect the USB memory to the PC.
2. Copy the entire content of the CD-ROM to the USB memory.
3. Connect the USB memory to the main body, hold down the [Rec] button and [Rhythm] button and turn on the power to the unit.
4. Shortly thereafter, "Delete Update Mode" appears in the main body's screen; after confirming this message, press the [Play/Stop] button to start the update.
5. After confirming that "Finished" appears in the screen, turn off the power.



The update takes About 10 minutes to complete.

Quitting the procedure after several seconds may prevent proper updating. If this occurs, carry out the update again.



Cutting the power off while the update is still in progress may cause corruption of the program or data.
If the power is shut off before the update is properly completed, carry out the update from the beginning again.
When it is not possible to update, it may be due to a failure in recognizing the USB memory or the update file.
Remove and reconnect the USB memory or check the update file in the USB memory,then run the update again.

Measures against system update failure

If for any reason the update fails, it may be due to the following issues.

- Incorrect update file
- Poor contact at USB port
- Damaged USB memory

If a check of these issues reveals that conditions are normal, try the update procedure again.
If still unable to carry out the update, replace the MAIN board, USB port, and/or the USB memory.

Test Mode

Items Required

The following tools are necessary for Test mode.

- MIDI cable (minimum length 1.5 meter)
- 2 audio cables
- USB cable (minimum length 1.5 meter)
- Headphones
- Microphone
- Expression pedal (EV-5)
- Touch pen (#00900545)
- Infrared communications-capable data communications device (laptop/notebook computer)
- VGA display
- Television equipped with PAL input
- Television equipped with NTSC input
- Remote control (#03789256)
- Serial port test Jig (D-sub 9pin) (#17041815)
- CD player with stereo output
- RCA pin cable permitting connection of the CD player with the main body's AUX Input
- MIDI decode CD

Preparing the MIDI Decode CD for test



This data prohibits use excluding the test usage.

If downloading

The downloaded file is a self-extracting file.
Double-click the icon in the Explorer, or click Start in the taskbar, choose Run,use the Browse button to specify the file name, and execute the file to extract it.
When the extraction is complete, the following file will be created.

- 01-QRS1.wav (MIDI Decode CD)
- 02-PianoCD1.wav (PianoCD DISC)

"Using a PC and CD-R/RW drive, write this MIDI Decode wav file to the root directory of a CD-R disc to create.
The PianoCD wav file is for the reference.

* *Write the CD-R disc in CDDA format."*

Entering Test Mode

1. Turn on the power to the unit.
2. Hold down the [Play/Stop] and [Track 2] buttons and press the [Sound Control] button.The following type of screen appears, indicating the unit has entered Test mode.

Test Mode	
NAND Version:	1.03
NOR Version:	1.00
Model Name:	KR117M
Destination:	DOM
ROMProtect:	OFF
MAOrder:	Not Exist
Decoder Board:	1.01
Moving Key:	OK
CD Drive:	OK
Detail	Next

Exiting Test Mode

Turn the power off, except during Factory Reset is in progress.

Skipping

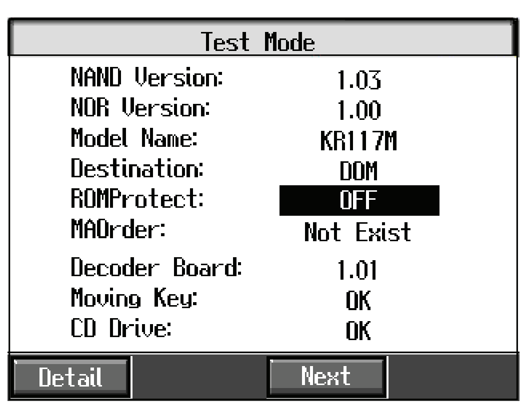
To exit from this mode, hold down the [Wonderland] button and press the [Sound Control] button.

Test Items

1. Version Check
2. Sound Generator Check
3. Touch Panel Calibration
4. Touch Panel A/D Check
5. BUTTON/LED Check
6. A/D Check
7. Rotary Encoder Check
8. Pan Effect Check
9. LCD/Display Check
10. MIDI/USB Check
11. IrPort Check
12. Headphone Check
13. AUX OUT Check
14. AMI Check
15. DSP Check
16. Remote Controller Check
17. Device Check
18. Destination Setup
19. Factory Reset
20. Moving Key Check
21. Serial Port Check

<1> Version Check

1. Turn on the power to the unit.
2. Hold down the [Play/Stop] and [Track 2] buttons and press the [Sound Control] button.The following type of screen appears, indicating the unit has entered Test mode.



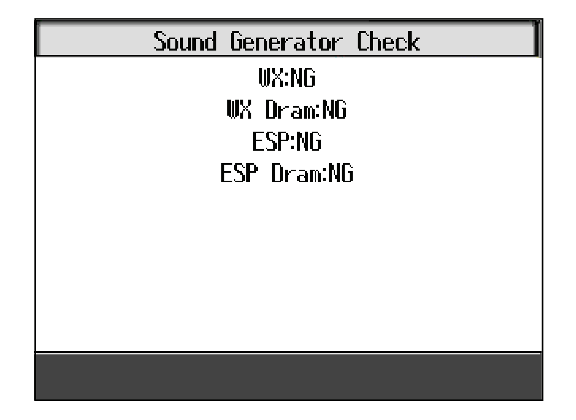
3. Touch the <Detail> button on the screen; the following type of screen appears.

Build etc.
Prog Version/Build: 0.00/0000
Boot Version/Build: 0.00/0.00
SongVersion: ----
DataVersion: ----
StyleVersion: 0.00

4. Press the [Exit] button.
5. Touch the <Next> button on the screen to advance to the next test.

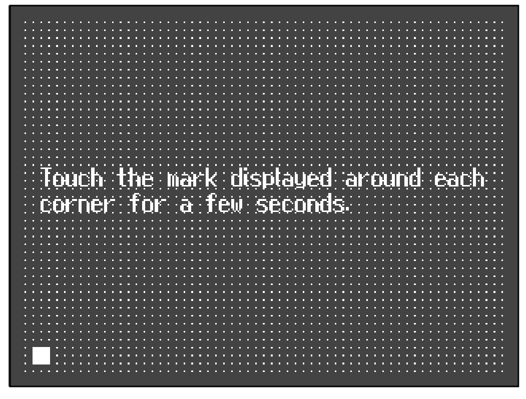
<2> Sound Generator Check

This checks the operation of the sound generator.
If the tests are passed successfully, the procedure automatically advances to the next test.
If any portion of the test fails, a continuous sound is played.
To exit Test mode, turn off the power.



<3> Touch Panel Calibration

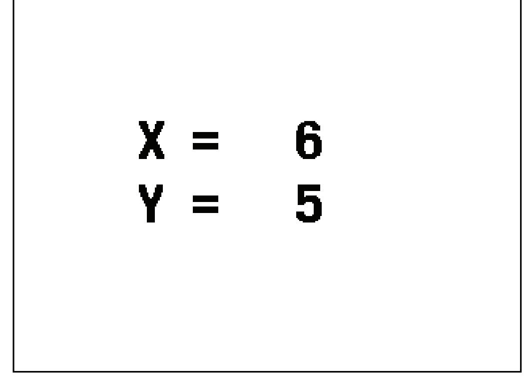
This corrects location within the touch panel (calibration).
Use the special touch pen(#00900545) for this calibration.
If necessary, order the part from your Roland Service Center.



1. Touch the mark appearing on the screen with the touch pen.
2. When the touched mark is confirmed, move to the next point.
3. When all four points have been touched, the calibration is performed. Failure of the calibration to execute properly is indicated by “Error” in the screen; if this occurs, perform the calibration again.
4. If the calibration does execute properly, this is indicated by “Executing...” in the screen; the procedure then advances automatically to the next test.

<4> Touch Panel A/D Check

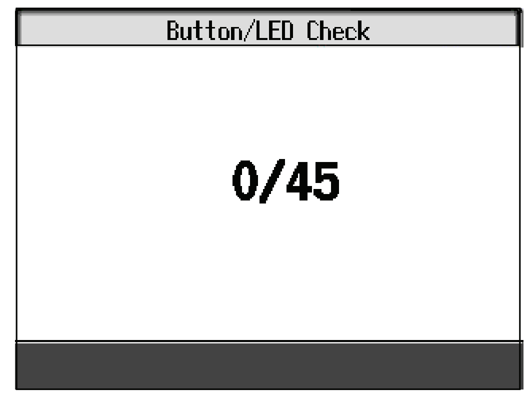
This confirms the response over the entire touch panel.



1. Using the touch pen, trace a line diagonally from the lower left corner to the upper corner of the screen
   The coordinates of the points touched by the pen are indicated on the screen.
   Coordinate values increase as the pen is moved up and right, from “X=0, Y=0” at the lower left corner to “X=9, Y=9” at the upper right corner.
2. If the value for both X and Y increases from 0 to 9, the procedure automatically advances to the next test.

<5> BUTTON/LED Check

This confirms the function of all panel buttons and LEDs.



1. The LED for the panel button being checked flashes.
2. When the flashing button is pressed, a piano sound is played, the button's LED goes off, and the test proceeds to the next button/LED to be checked. Sequentially confirm the operation of the other buttons/LEDs in this manner. The BEAT LEDs correspond to the buttons indicated below (displayed on the screen).

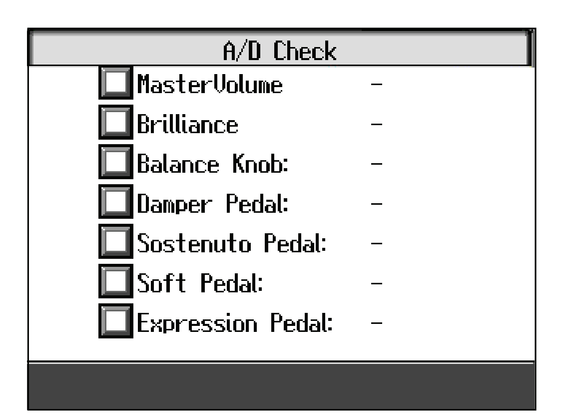
Button	LED
[Tempo -]	left end Red
[Tempo +]	left end Green
[exit]	2nd from left
[option]	3rd from left
one touch Program [Piano]	center
one touch Program [Arranger]	3rd from right
[Reset]	2nd from right
[Bwd]	right end Red
[Fwd]	right end Green



3. When all of the buttons have been checked, the procedure automatically advances to the next test.

<6> A/D Check

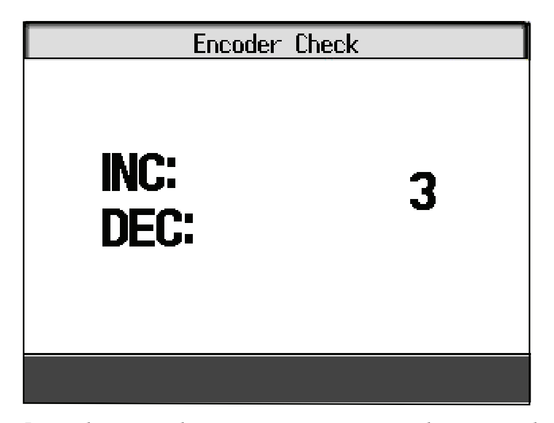
The value indicated in the screen changes as the pedal or volume control is adjusted.



1. Connect the Expression Pedal.
2. A sound is played as the pedal or volume control is adjusted, with the pitch changing with the change in value.
3. When all of the pedals and volume controls have been checked, the procedure automatically advances to the next test.

<7> Rotary encoder test

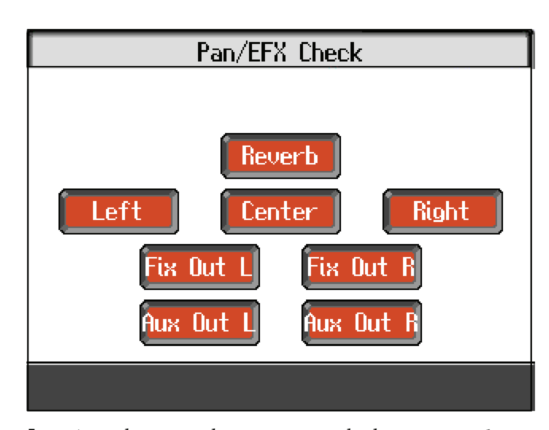
This checks the operation of the rotary encoder.



1. When rotate the rotary encoder clockwise, the value on the display will be increased.
   When the value reached "30", display shows "INC:OK".
2. When rotate the rotary encoder counterclockwise, the value on the display will be decreased.
   When the value reached "0", display shows "DEC:OK".
3. When finishing check of both direction, change to the next test automatically.

<8> Pan Effect Check

This checks the operation of sound generator and DSP.



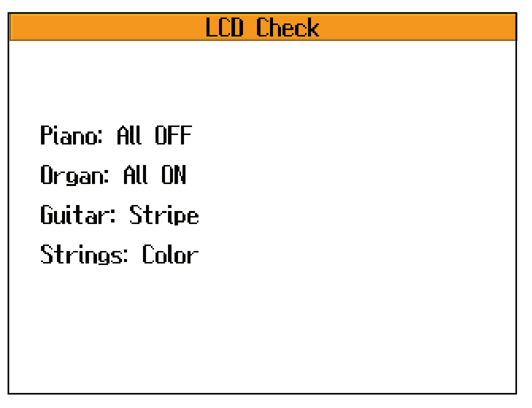
1. As each icon on the screen is touch, the corresponding sound is played; confirm that the no sound is made in error.

Icon	Sound played
<Reverb>	Reverb sound
<Left>	Sine wave from left speaker
<Center>	Sine wave from both speaker
<Right>	Recangular wave from right speaker
<Fix Out L>	Sine wave output from Balanced Out left
<Fix Out L>	Rectangular wave output from Balanced Out right
<Aux Out L>	Sine wave output from Aux Out left
<Aux Out R>	Rectangular wave output from Aux Out right

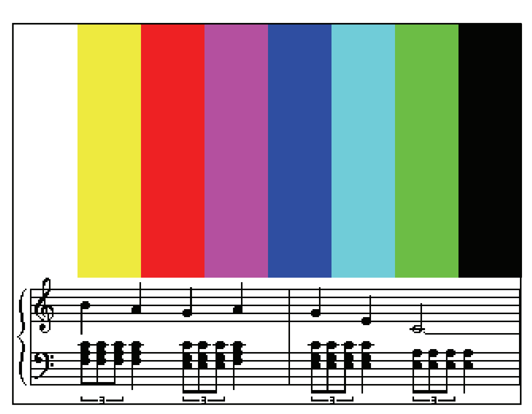
2. Touch the <Next> button on the screen to advance to the next test.

<9> LCD Check

This checks for any damage or other problems with the dots in the LCD.



1. Press the [Piano] tone button and confirm that all of the dots on the screen go off.
2. Press the [Organ] tone button and confirm that all of the dots on the screen are lit.
3. Then press the [Guiter] tone button to display the following screen.



4. Confirm that the test pattern is displayed.
5. Rotate the panel Contrast knob and adjust the contrast until the lower portion of the screen display is crisp and clear.
6. Next, confirm that the pattern appears the same on the external display.



You cannot simultaneously use both an external display and a television with the KR. Moreover, neither the external display nor the television will be able to display properly if both are connected at the same time.

[The check of a VGA display]

It checks that nothing has connected with a Video Out terminal, and a VGA display is connected to an Ext Display terminal.

Press the Music Style [Pop Rock] button to display the image on the VGA display.

[The check of a television display]

It checks that nothing has connected with an Ext Display terminal, and television is connected to a Video Out terminal.

Switch from the VGA display to the television and press the Music Style [Ballad Acoustic] button to display the image on the television screen (for NTSC regions; in regions using PAL format, press the Music Style [Oldies Country] button).

Lastly, press the [Strings] tone button and confirm that the image of the piano is displayed clear in the screen.



7. Touch the <Next> button on the screen to advance to the next test.

To exit from this mode, hold down the [Wonderland] button and press the [Sound Control] button.

<10> MIDI,USB Check

This performs a check of the MIDI and USB interfaces.

This test requires the use of a MIDI cable and USB cable.



1. MIDI Check

Using the MIDI cable, directly connect the jack case (front) MIDI IN and MIDI OUT connectors located on the main body's bottom front left side, and confirm that "MIDI: OK" appears in the screen.

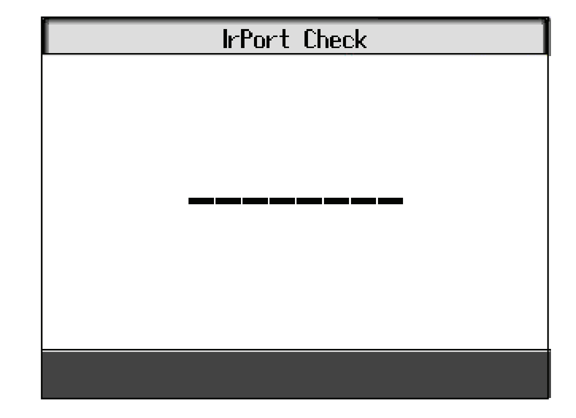
2. USB Check

With the USB cable, directly connect the jack case (front) USB Function port to the USB Host port located on the bottom of the main body on the right side. Confirm that "USB: Connected" appears in the screen, then disconnect the USB cable from the USB Host port. A message to "check other USBHost port" should appear in the screen; connect the USB cable to the USB Host port in the front panel USB box.

Confirm that "USB: Connected" appears in the screen, then disconnect the USB cable from the USB Host port.

3. Touch the <Next> button on the screen to advance to the next test.

<11> Ir Port Check



1. When using a mobile/cell phone

Forward bookmarks, memos, or other such data from the cell phone.

If test passes:

- The name of the cell phone model is indicated in the main body's LCD.

2. When using a PC capable of output via infrared

Bring the PC's infrared port close to the main body's infrared port.

If test passes:

- The name of the PC model is indicated in the main body's LCD.
- "Roland / KR117M" is shown on the PC.

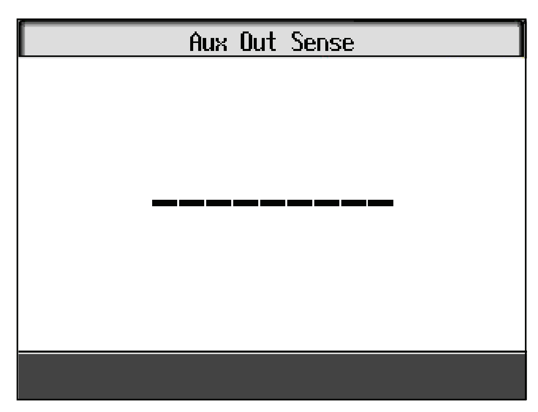
3. Touch the <Next> button on the screen to advance to the next test.

<12> headphones Check



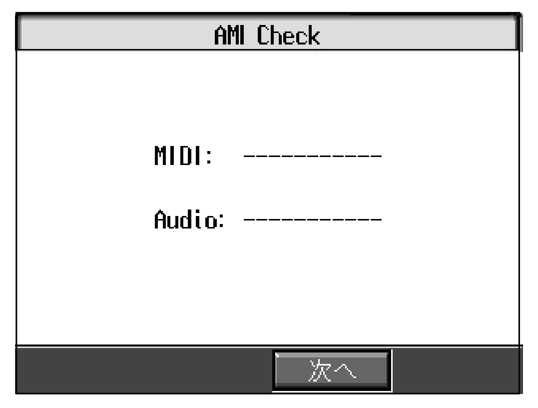
1. Connect a pair of headphones to the jack case (front) Phones jack at the main body's left underside.
2. Confirm that what is indicated in the LCD changes from "Speaker" to Phones."
3. Touch the <Next> button on the screen to advance to the next test.

<13> AUX OUT Check



1. Connect a cable to the jack case (rear) AUX OUT jack at the main body's left underside.
2. It checks that the LCD display of a main part changes from "---------" to "CONNECTED".
3. Touch the <Next> button on the screen to advance to the next test.

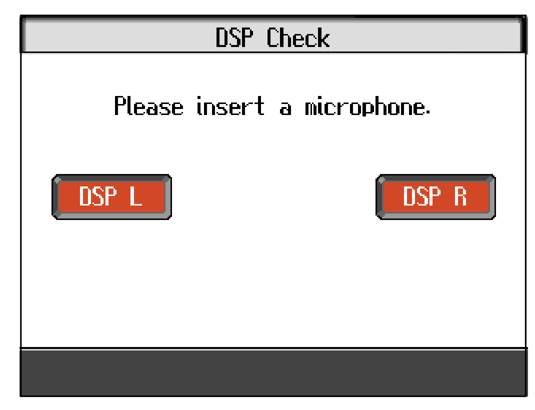
<14> AMI Check



1. Input the CD player's stereo output to the main body's AUX Input. Be absolutely sure not to mistakenly reverse the left and right channels.
2. Place the MIDI Decode CD in the CD player and play the disc.
3. It checks that MIDI and Audio of a LCD display of a main part change from "---------" to "Receiving."
4. Moreover, it checks that musical tone is normally reproduced from the monitor speaker.
5. Touch the <Next> button on the screen to advance to the next test.

<15> DSP Check

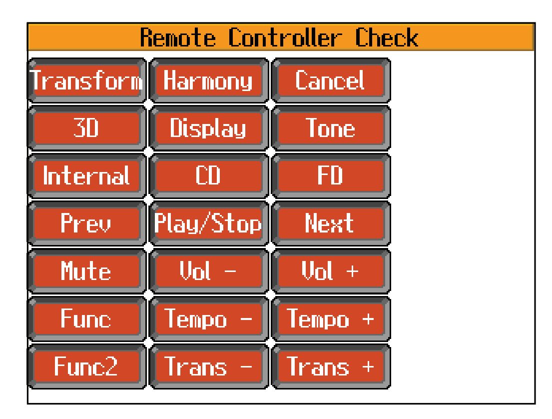
This checks the DSP output.



1. Connect a microphone to the jack case (front) mic jack at the main body's left underside.
2. Touch <DSP L> on the main body's screen to output a sine wave; when <DSP R> is touched, a rectangular wave is output.
3. Confirm that there are no irregularities or errors in the sounds produced.
4. Touch the <Next> button on the screen to advance to the next test.

<16> Remote Control Check

This checks the functioning of the remote.



1. While standing at a distance of eight meters from and within an angle of 40 degrees of the main body's infrared receiving element, press the remote's buttons in sequence, starting from the upper left and moving rightward; confirm that the corresponding button lights go off.
2. After the check of a button is completed, it moves to the next test automatically.

<17> Device Check

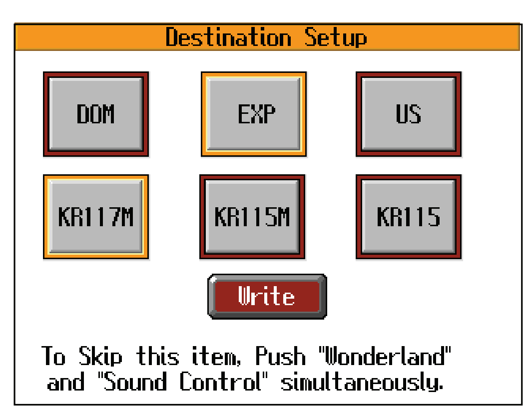
This performs a check of the devices.

Device Check	
Boot Block:	OK
Program ROM:	OK
Data ROM:	OK
Song:	OK
Style:	OK
Wave ROM1:	OK
Wave ROM2:	OK
Wave ROM3:	OK
Wave ROM4:	OK
	Next

Touch the <Next> button on the screen to advance to the next test.

<18> Destination Setup

The region and the model name of product are chosen and destination information is set up.



1. Touch the icon on the screen to set the region.

Displayed	Region
DOM	Japan
EXP	Overseas other than North America
US	North America

2. Touch the icon on the screen to set the model name.

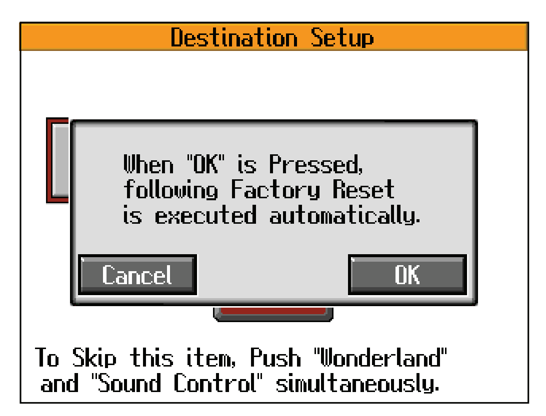
KR117M
KR115M
KR115

3. If the destination/model is chosen, the <write> icon on a screen will be touched and a setup will be written in.

To exit from this mode, hold down the [Wonderland] button and press the [Sound Control] button.



Writing the regional information may result in loss of the contents of the User memory.



4. Touch the <Yes> button on the screen to the factory reset. A version check screen is displayed after an end.
5. Touch the <Next> button on the screen to advance to the next test.

<19> Factory Reset

This restores all of the information recorded to the instrument's internal memory to the original factory settings.
When skipping the regional information on the above<18>, the following screen appears.



1. Touch <Yes> in the screen to begin Factory Reset.

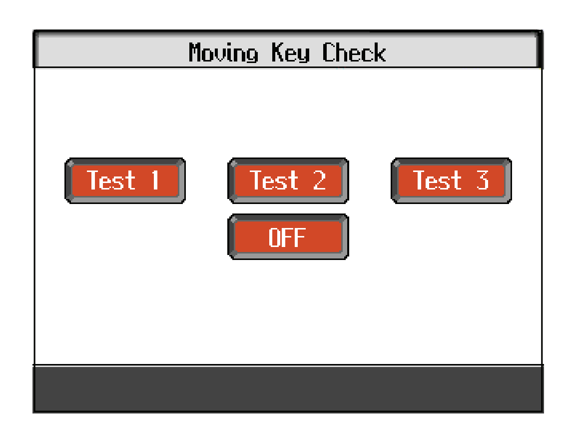
When Factory Reset is completed. A version check screen is displayed after an end.

> Touching the <No> on the screen appears the version number without executing Factory Reset.

2. To advance to the next test, hold down the [Wonderland] button and press the [Sound Control] button.

<20> Moving Key Check

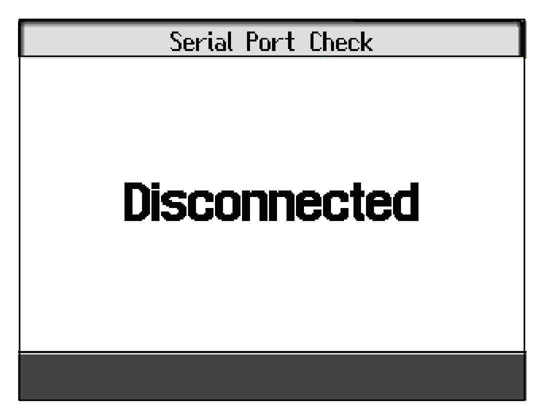
Press each of the following buttons and confirm that the Moving Key function operates properly.



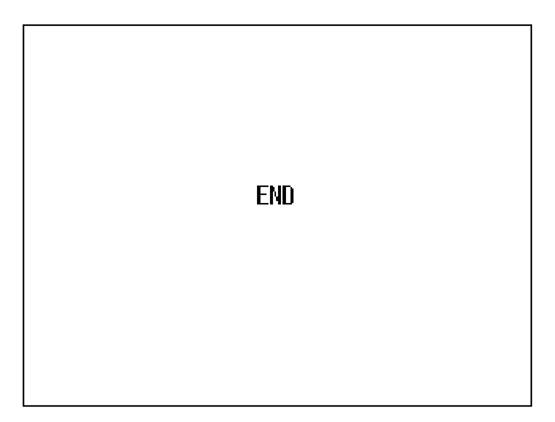
Icon	Operation
Test1	The keys are played one by one like a wave, starting from the lowest note to the highest, and then from the highest note to the lowest.
Test2	The note one octave below the pressed key is played.
Test3	The note one octave above the pressed key is played.

<21> Serial Port Check

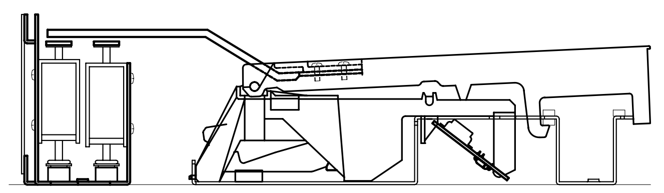
Connect a Jig to the CD case (rear side) Serial connector at the main body's right bottom side.



A Jig is connected when displayed on the screen as "Disconnected." When normal, it is displayed on a screen as "END" and test mode is ended.



Instructions for Adjusting the Moving Key



Check the PA-5 keyboard unit to confirm whether or not the following issues are not present, then adjust the unit.

- Any damaged keys or hammers
- Any separated or missing cushions
- Key/solenoid units are all securely fixed to the bottom board
- Keys travel smoothly, even when played with force

Changing the Angle of Key Arm Bend to Adjust the Clearance

When replacing solenoid units, key unit, or key arms, or when performing Moving Key maintenance, the clearance between the solenoids and key arms must be adjusted to the appropriate distance by bending the key arms manually.

The following gives the instructions for this check.

Following the proper disassembly sequence, disassemble the unit up to the point of removing the front panel and lid assembly.

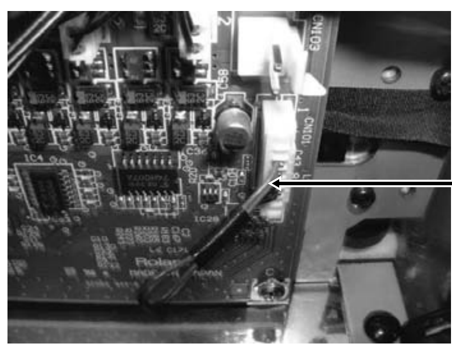
Key units and key arms are replaced in this condition.

When replacing a solenoid unit, first remove the key unit before replacing the solenoid.



When replacing solenoid units, shift the entire wiring connected to the driver board above the solenoid being replaced.

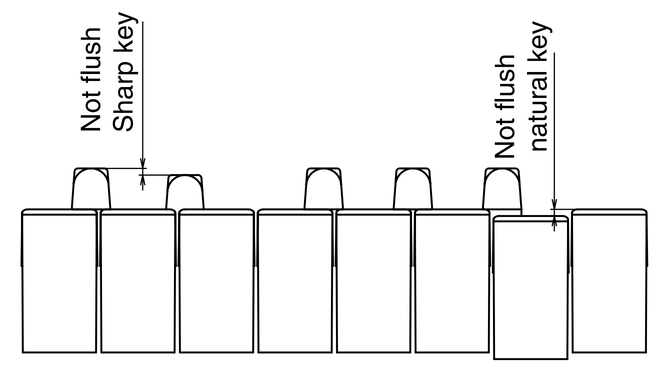
In particular, take care not to forget to shift the loop wiring connected to CN101 of the driver board at the far left (of the low notes).



In this state with the unit replaced, carry out the adjustment procedure.



Before turning on the power, align the height of the key ends.



1. Look over the entire keyboard to check that the key arm heights are mostly matched.
2. Turn on the power.



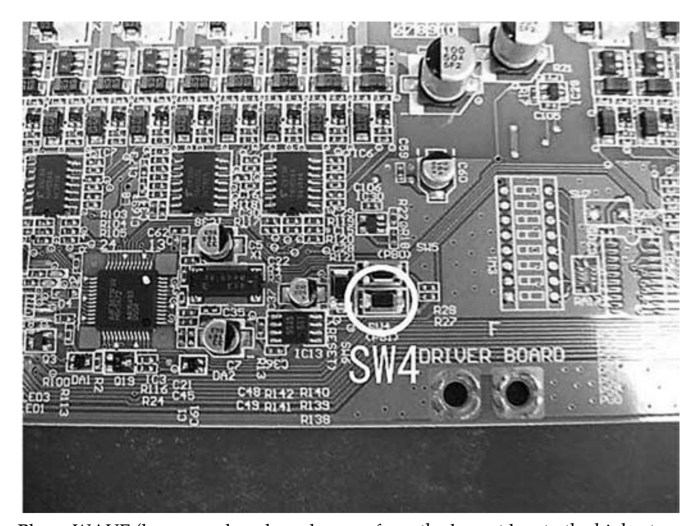
The instrument does not operate when the power switch is left disconnected; if necessary, remove the power switch from the front panel and connect it to CN299 on the Rear Jack Board.

Take care to avoid electric shock during this procedure.

3. Press SW4 on the Driver board, switch to Test mode, and confirm the following operation.
   Press SW4 on one of the four Driver boards.







Play a WAVE (keys are played one by one, from the lowest key to the highest, resembling a wave).
The test can be cancelled by turning off the power.

4. If a key's action is poor or if the key is noisy, manually bend the key arm to adjust the key arm height so that there is a clearance of 1--2 mm between the key arm and the solenoid. If no improvement is evident, change the clearance or bend the key arm laterally.

Make the following adjustments for the corresponding symptoms.

Symptom: Before powering up, key seems to be drooping, or the height of the key end is not aligned
Cause: The solenoid is touching the key arm, propping it up
Measure: Increase the clearance by bending the key arm up.

Symptom: During a Moving Key performance, pressed keys do not maintain position.
Cause: The clearance between the key arm and cap cushion is too narrow
Measure: Increase the clearance by bending the key arm up.

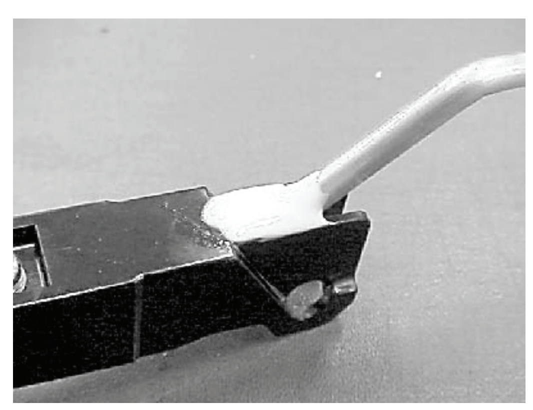
Symptom: During a Moving Key performance, key does not complete the full stroke.
Cause: The clearance between the key arm and cap cushion is too wide
Measure: Reduce the clearance by bending the key arm down.

Symptom: With the key held down, the key vibrates
Cause: The clearance between the key arm and cap cushion is too narrow
Measure: Reduce the clearance by bending the key arm down.

5. After the adjustments are completed, reassemble the components.

Key Arm Damping Material

When replacing the key unit, key unit key, of key arm: Replace the applicable key and key arm together as a set.
After screwing the key arm to the key, apply Silex (damping material:40231345) between the key and key arm. Refer to the photo for the amount to apply.
24 hours is needed following application for the material to dry; do not perform with this set during this period.



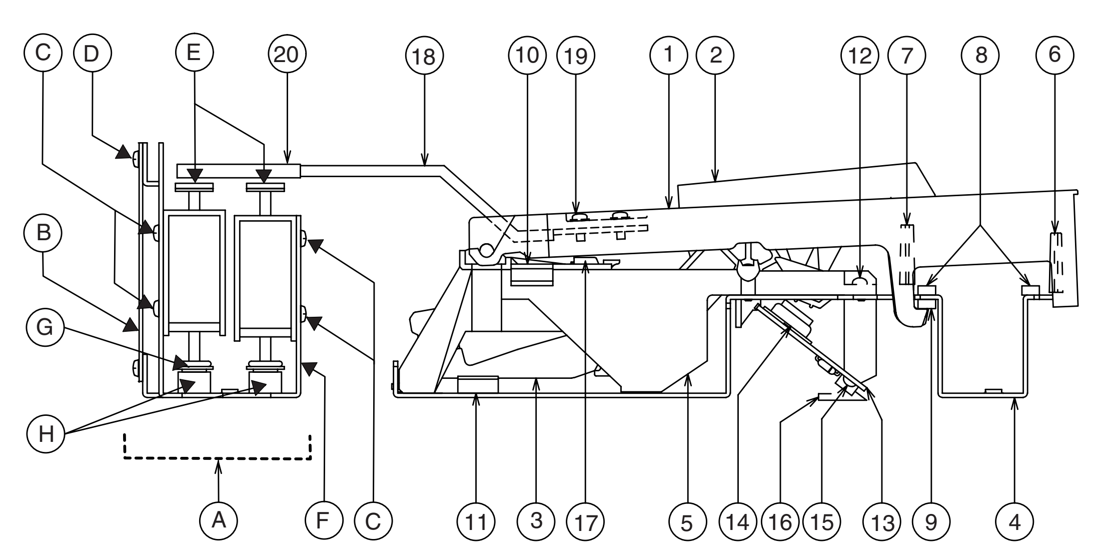
Screws for Attaching the Solenoid to the Chassis (Black)
The screws used for attaching the solenoid to the chassis are "Sems M3 x 4 BZC (Black) fasteners (40011489). " If screws longer than these are used, the tips of the screws will touch the solenoid coil. To prevent damage to the coil, use the proper length screws.
"The color of the screws that are used by KEY ARM and DRIVER BOARD is chromate."
Please note don't be confused with screw for installing solenoid.

Precautions When Attaching the Driver Board

When attaching the driver board to the chassis, take care not to allow the solenoid wiring to become pinched by the screws.
This may result in a short and possibly damage the board.

KEYBOARD PARTS LIST (KR117M)

Please refer to the PA-5B service notes(17058272E0) about repairing method of Keyboard section.



PA-5C88-A WITH KEY ARM (17041752) PARTS LIST

No.	PARTS No.	PARTS NAME	QTY.
1	04123678	PA-5 N-KEY A-WP	7
1	04123690	PA-5 N-KEY B-WP	8
1	04123701	PA-5 N-KEY C-WP	7
1	04123712	PA-5 N-KEY D-WP	7
1	04123723	PA-5 N-KEY E-WP	7
1	04123734	PA-5 N-KEY F-WP	7
1	04123745	PA-5 N-KEY G-WP	7
1	04123756	PA-5 N-KEY A'-WP	1
1	04123767	PA-5 N-KEY C'-WP	1
2	01894334	PA-5 SHARP KEY	36
3	03017112	PA-5A HAMMER-1	22
3	03017123	PA-5A HAMMER-2	22
3	03017134	PA-5A HAMMER-3	22
3	03017145	PA-5A HAMMER-4	22
4	********	PA-5 CHASSIS 88P	1
5	02895767	PA-5 SUB CHASSIS 12P	7
5	02895778	PA-5 SUB CHASSIS 4P	1
6	01894923	PA-4A GUIDE BUSHING C	52
7	00019912	PA-4 GUIDE BUSHING S-KEY	36
8	02016901	PA-5 KEY CUSHION A	2
9	02904401	PA-5 KEY CUSHION B	1
10	02016945	PA-5 HAMMER CUSHION B	1
11	02904390	PA-5 HAMMER CUSHION D	1
12	40012256	SCREW M3X10 BINDING B-TOTE FE ZC	37
13	71909045	PA-5 PWB LOW ASSY	1
	NOTE: 'PA-5	PWB LOW ASSY' includes the following parts.	
14	01898956	PA-5 RUBBER SWITCH 12P	2
13	71909034	PA-5 PWB MID ASSY	1
	NOTE: 'PA-5	PWB MID ASSY' includes the following parts.	
14	01898956	PA-5 RUBBER SWITCH 12P	3
13	71909023	PA-5 PWB HI ASSY	1
	NOTE: 'PA-5	PWB HI ASSY' includes the following parts.	
14	01898956	PA-5 RUBBER SWITCH 12P	3
15	40011267	SCREW 3X6 BINDING YAPTITE P FE ZC	22
16	02016989	BNCD-P=1.25-K-16-80	1
17	03563056	PA-5B JACK 12P	8
18	03125478	KEY ARM FE	88
19	40011067	SCREW 3X8 BINDING TAPTITE B FE ZC	176
20	02673912	ARM TAPE	88

The following parts do not include the Keyboard assy.

No.	PARTS No.	PARTS NAME	QTY.
*	03121534	BNCD-P=1.25-K-16-450	1
*	02123101	BNCD-P=1.25-K-22-400	1

SOLENOID UNIT ASSY (72231645) PARTS LIST

No.	PARTS No.	PARTS NAME	QTY.
A	72231645	SOLENOID UNIT ASSY	2
	NOTE: 'SOLENOID UNIT ASSY' includes the following parts.		
B	72125189	DRIVER BOARD	4
C	40011489	SCREW M3X4 PAN MACHINE W/SW BZC	176
D	40011067	SCREW 3X8 BINDING TAPTITE B FE ZC	24
E	02238678	CAP CUSHION	88
F	03125434	SL CHASSIS 44P	2
G	02781645	SL CUSHION P	88
H	03125467	CHASSIS CUSHION	4
	40017367	COATING CLIP CS-6	6
	40122612	NITTO ACETATE TAPE #5	

HOW TO ASSEMBLE THE STAND

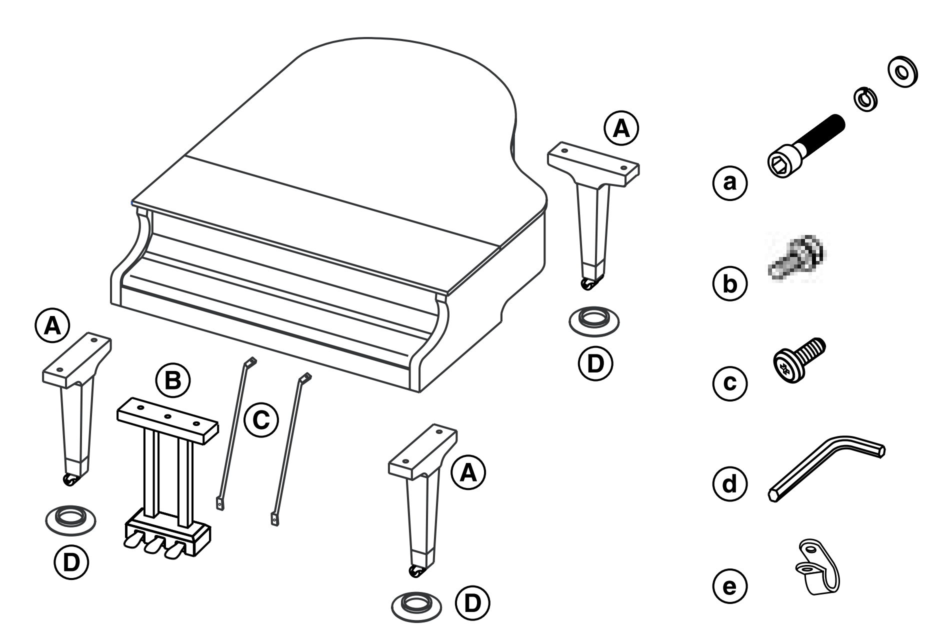
Leaflet For a Dealer or a Qualified Professional Installer (KR117)



This leaflet is for a dealer or a qualified professional installer. The customer should not attempt to assemble the instrument. Please consult your Roland dealer to assemble the piano. Roland cannot warrant the safety of the assemble operation, if this operation is carried out by the customer.

As the piano and legs are very heavy, always use three or more people when moving the piano, and be sure to handle it carefully. Then the piano must be carefully placed so it is level and sure to remain stable.

Check the Parts



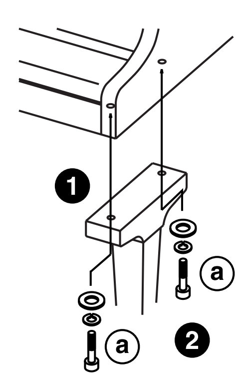
Before you begin assembling the stand, check that all the following parts were supplied.

Ⓐ	Legs	3	04120889
Ⓑ	Lyre assembly	1	72234667
Ⓒ	Lyre support sticks	2	03124678
Ⓓ	Caster Cups	3	12349401 (3pcs/1set)
ⓐ	Hex socket head cap bolts (M12 x 75)	9	40238612
	Spring washers	9	40018223
	Plain washers	9	40018212
ⓑ	Screw (M4 x 16)	5	40126267
ⓒ	Screw (4 x 10)	3	40012345
ⓓ	Hex wrench	1	40018601
ⓔ	Cord Cramp	4	40346767

Bolt s ⓐ are already installed on the Unit. Use these bolts and screws to assemble legss Ⓐ and lyre assemble Ⓑ.

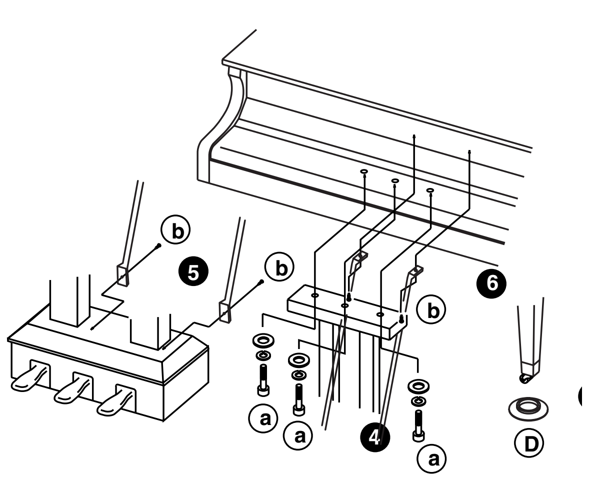
Assemble Procedure

Attach the legs to the piano



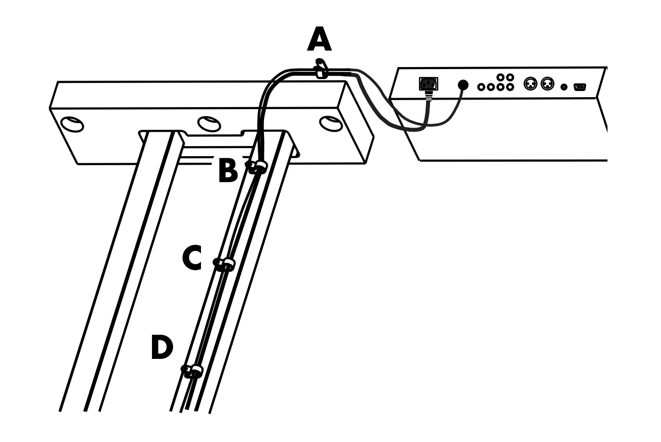
1. Position the legs Ⓐ in place beneath the piano.
2. Use the hex wrench ⓓ to fasten the leg Ⓐ to the piano (at two points) with the bolts ⓐ.
3. Fasten the two other legs Ⓐ to the piano in the same fashion.

Attach the lyre assembly



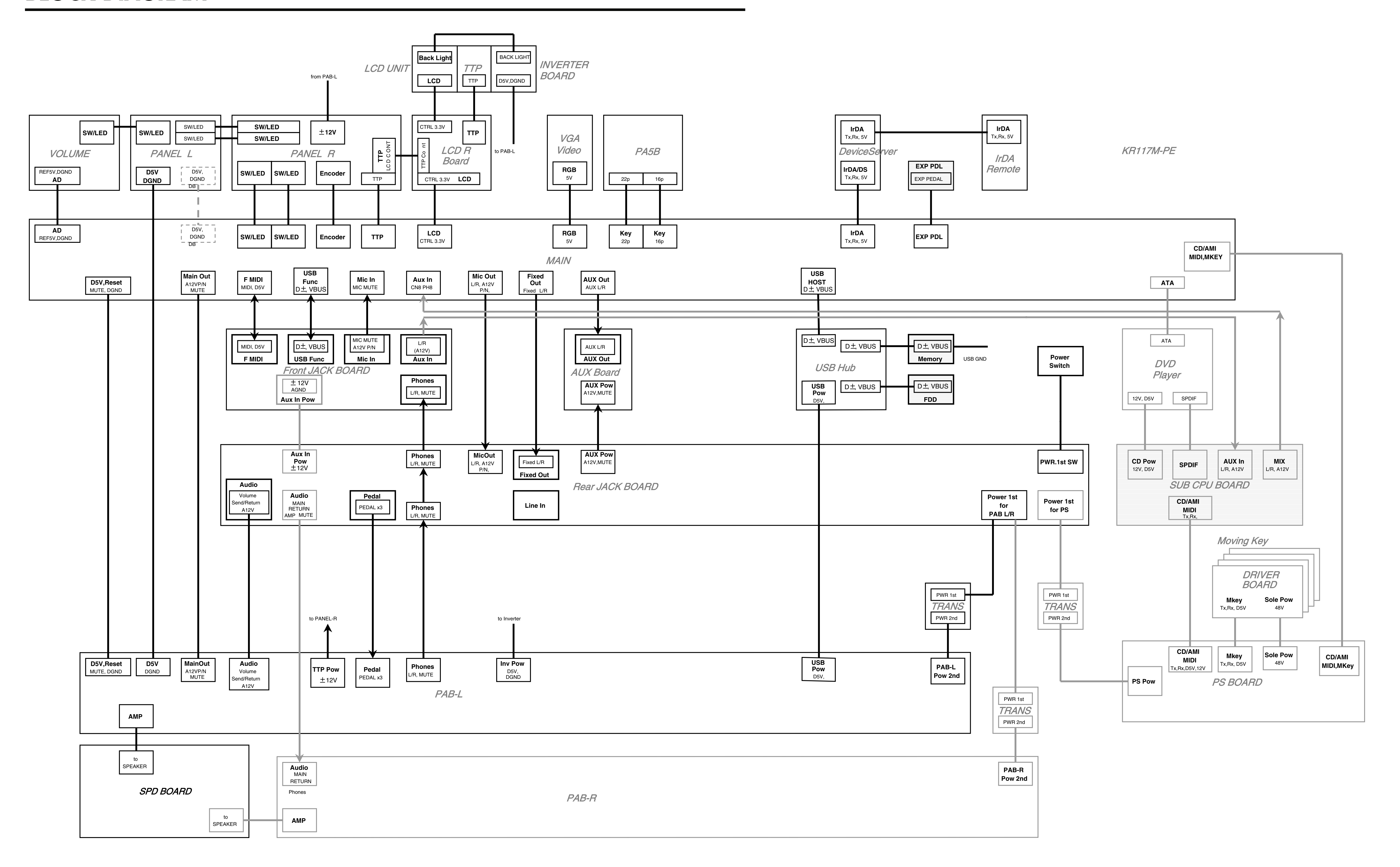
4. Using the bolts ⓐ, fasten the lyre assembly Ⓑ to the piano (at three points). Tighten the bolts firmly with the hex wrenched ⓓ.
5. Using the screws ⓑ, fasten the lyre support sticks Ⓒ to the lyre box (at two points).
6. Using the screws ⓑ, fasten the lyre support sticks Ⓒ to the piano (at two points).
7. Place the caster cups Ⓓ beneath the casters of the legs.

Connecting the Pedal Cord and the Power Cord

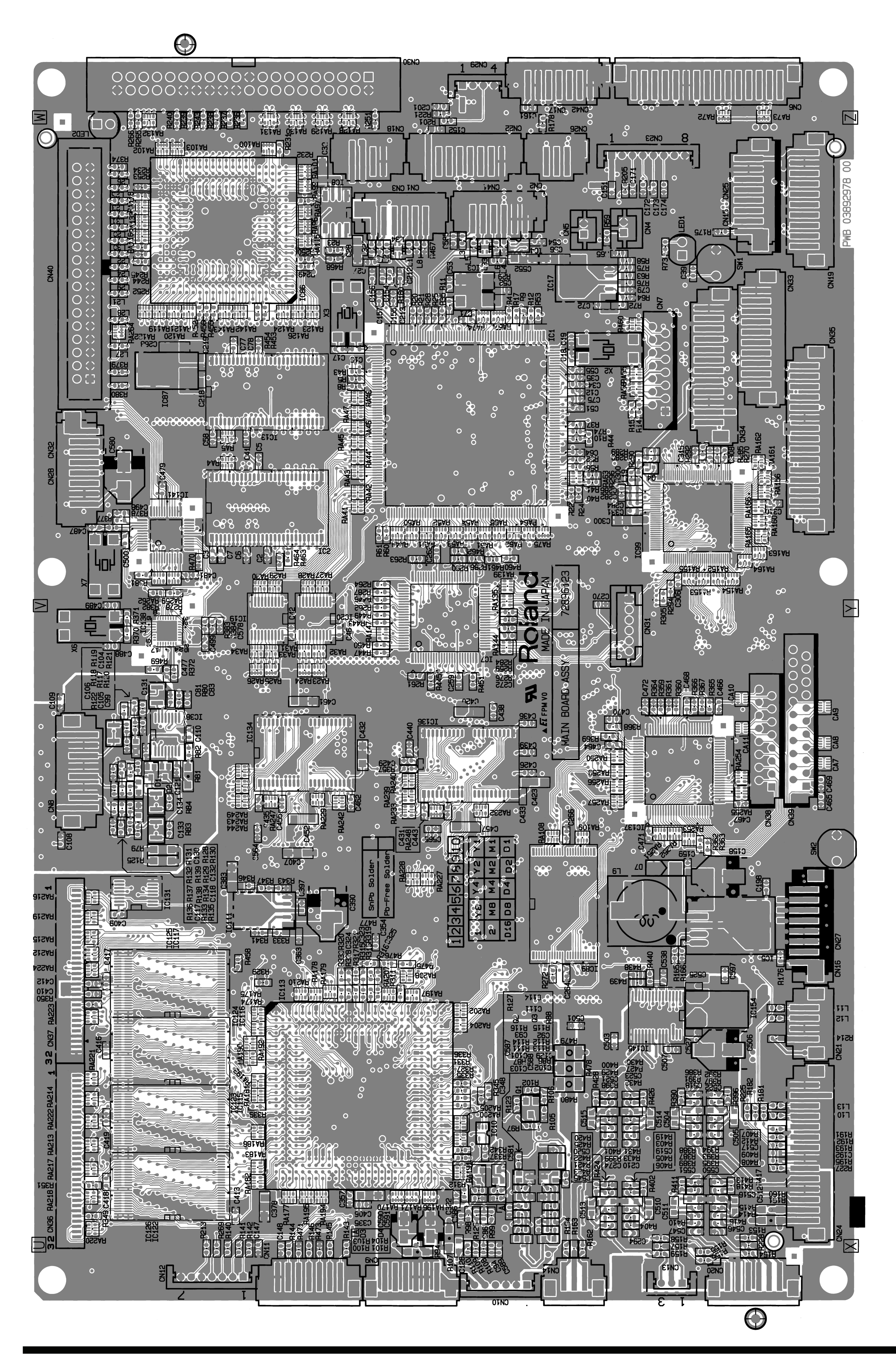


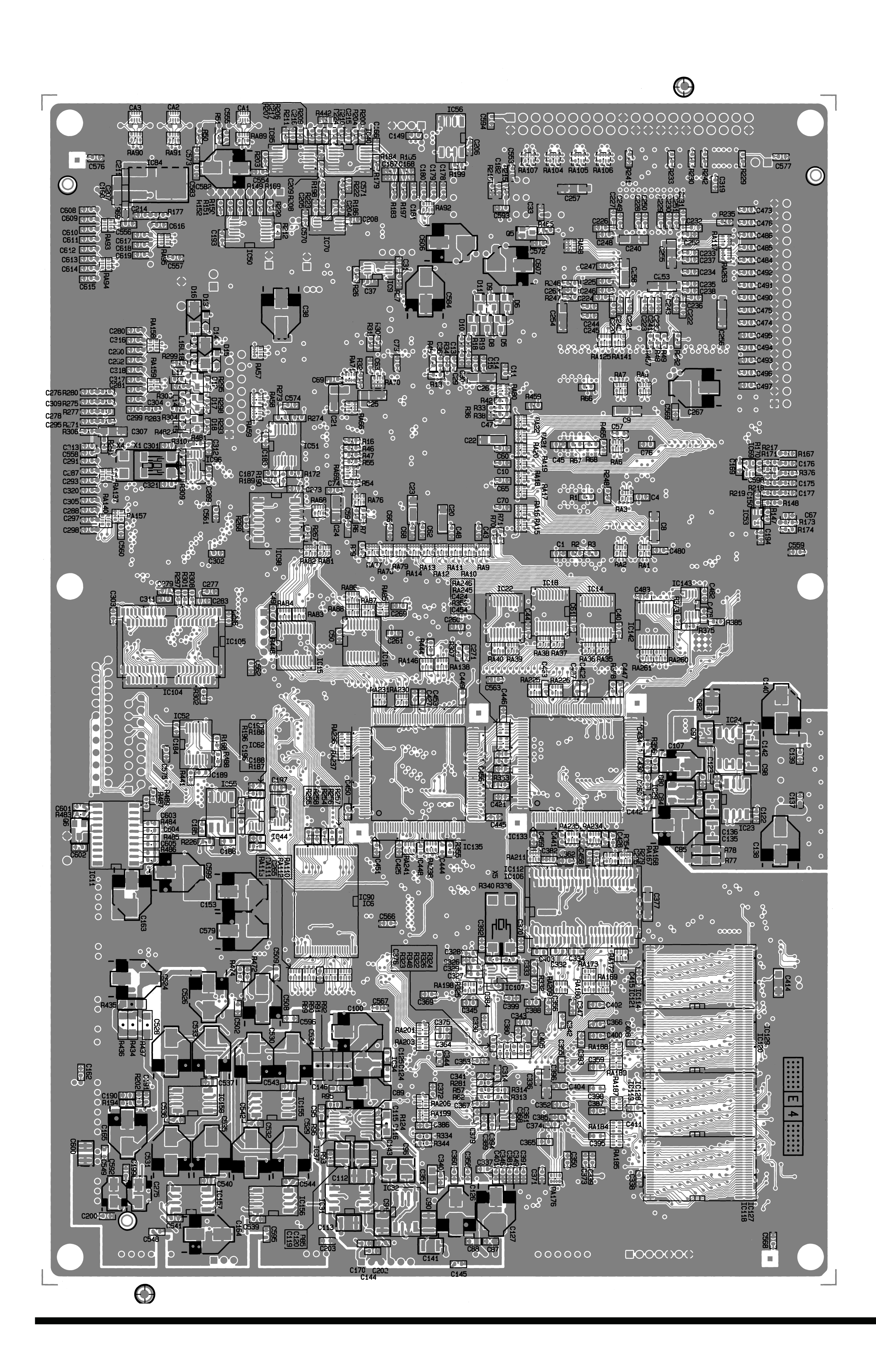
1. Connect the supplied power cord to the AC inlet jack.
2. Connect the pedal cord to the Pedal jack.
3. Cramp the power cord and pedal cord with Cord Cramp ⓔ and screw ⓑ at A (see the picture above).
4. Cramp the power cord and pedal cord with Cord Cramp ⓔ and screw ⓒ at B, C and D (see the picture above).
5. Plug the power cord into an AC outlet.

BLOCK DIAGRAM

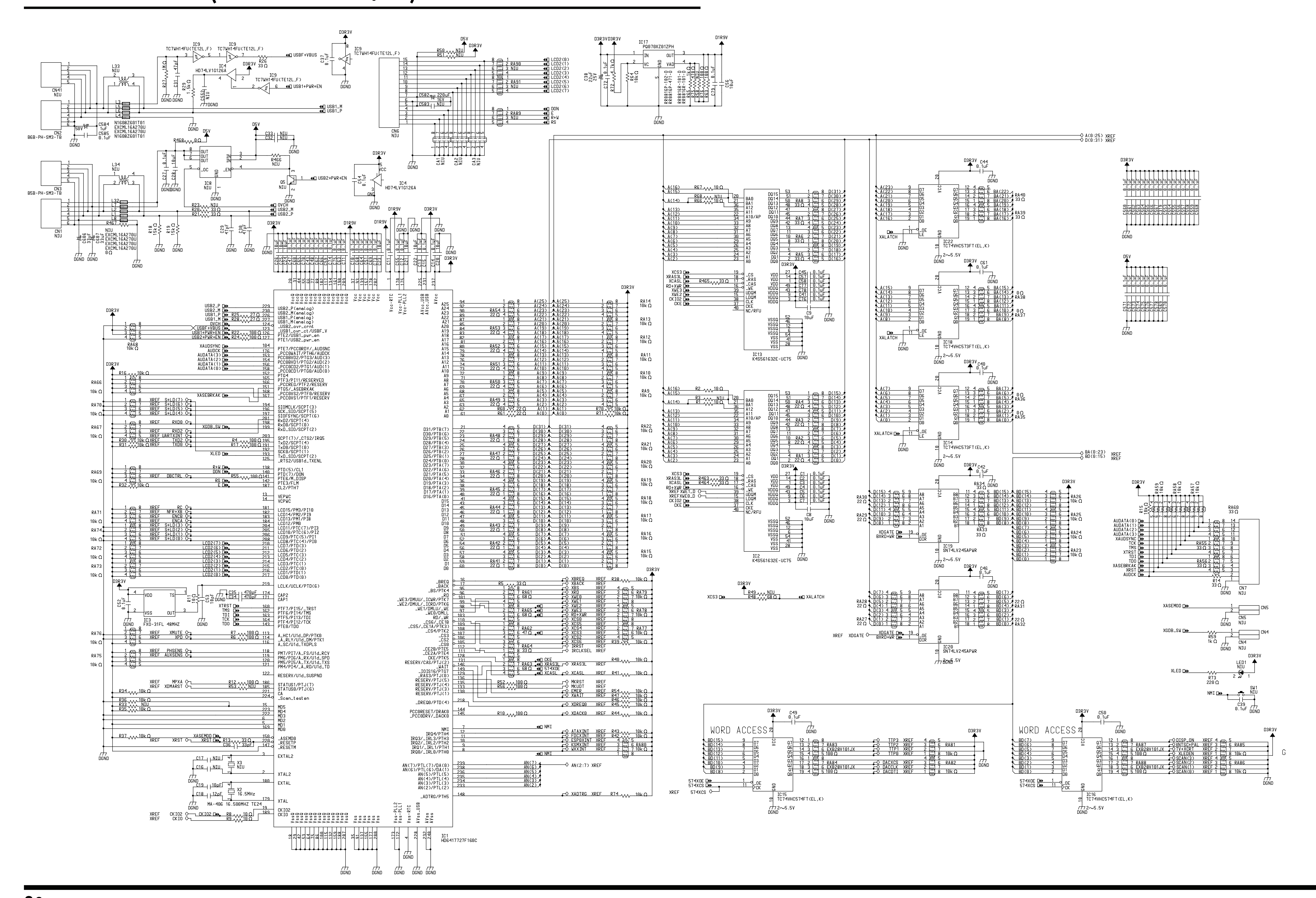


CIRCUIT BOARD (MAIN BOARD)

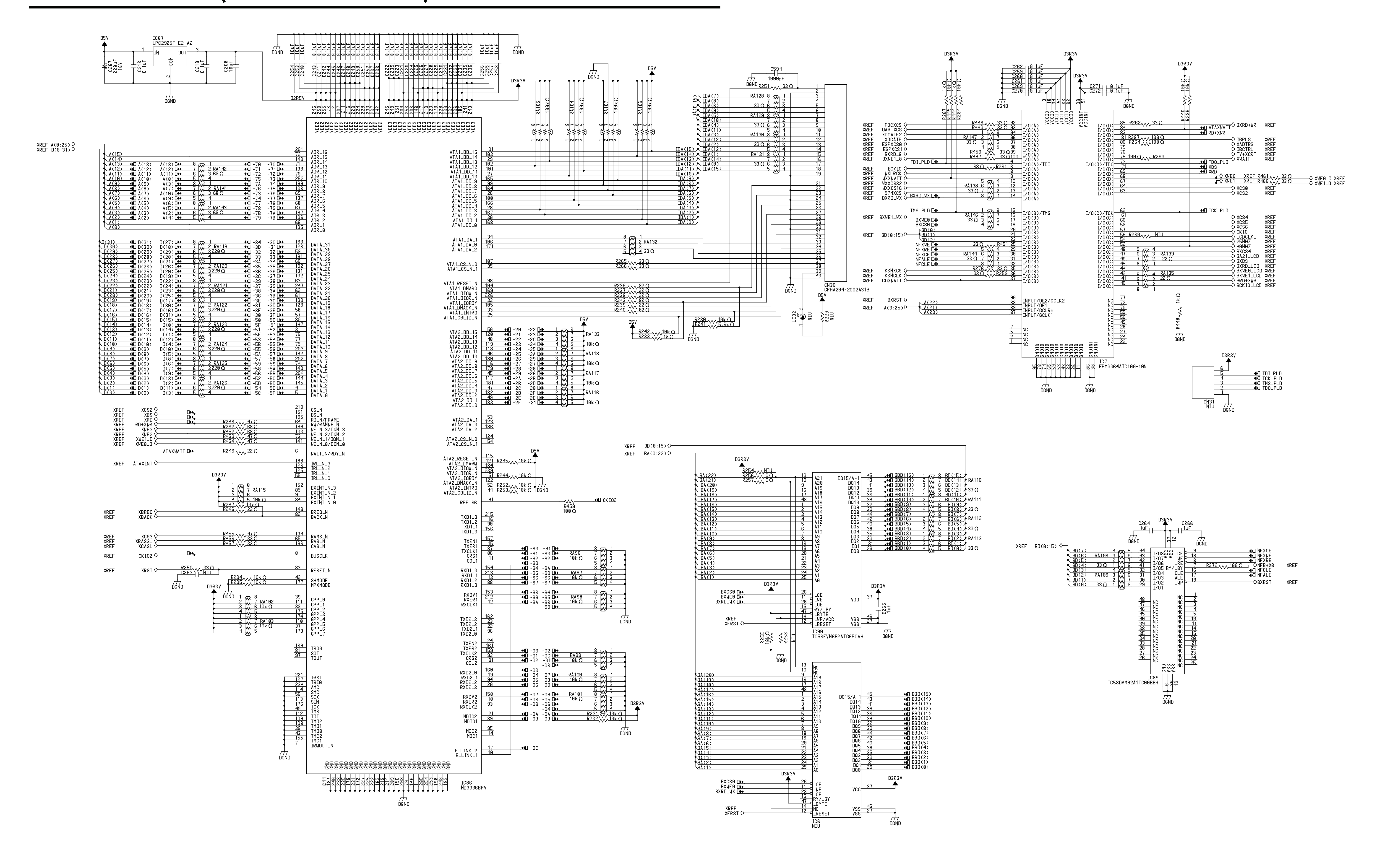




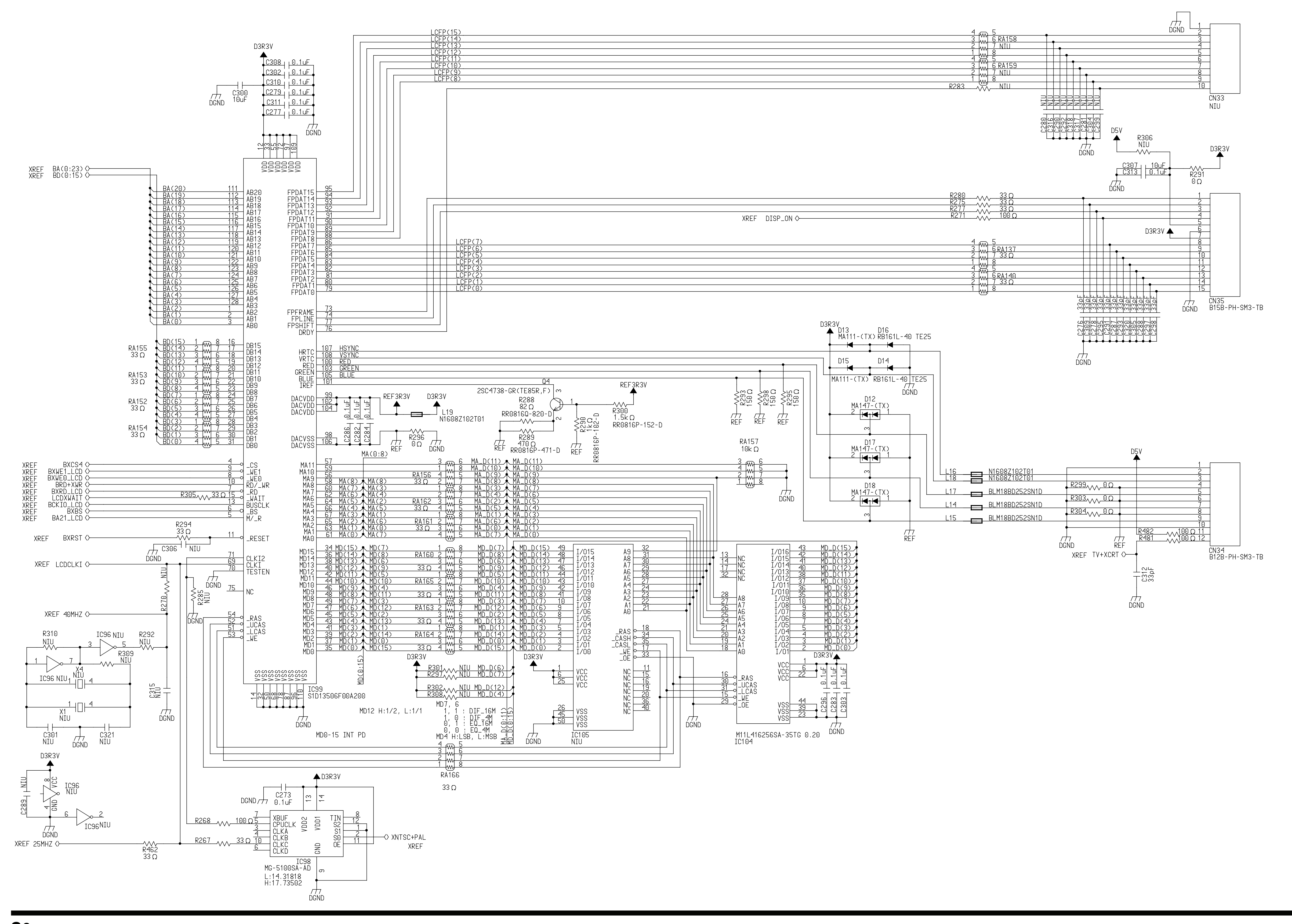
CIRCUIT DIAGRAM (MAIN BOARD 1/11)



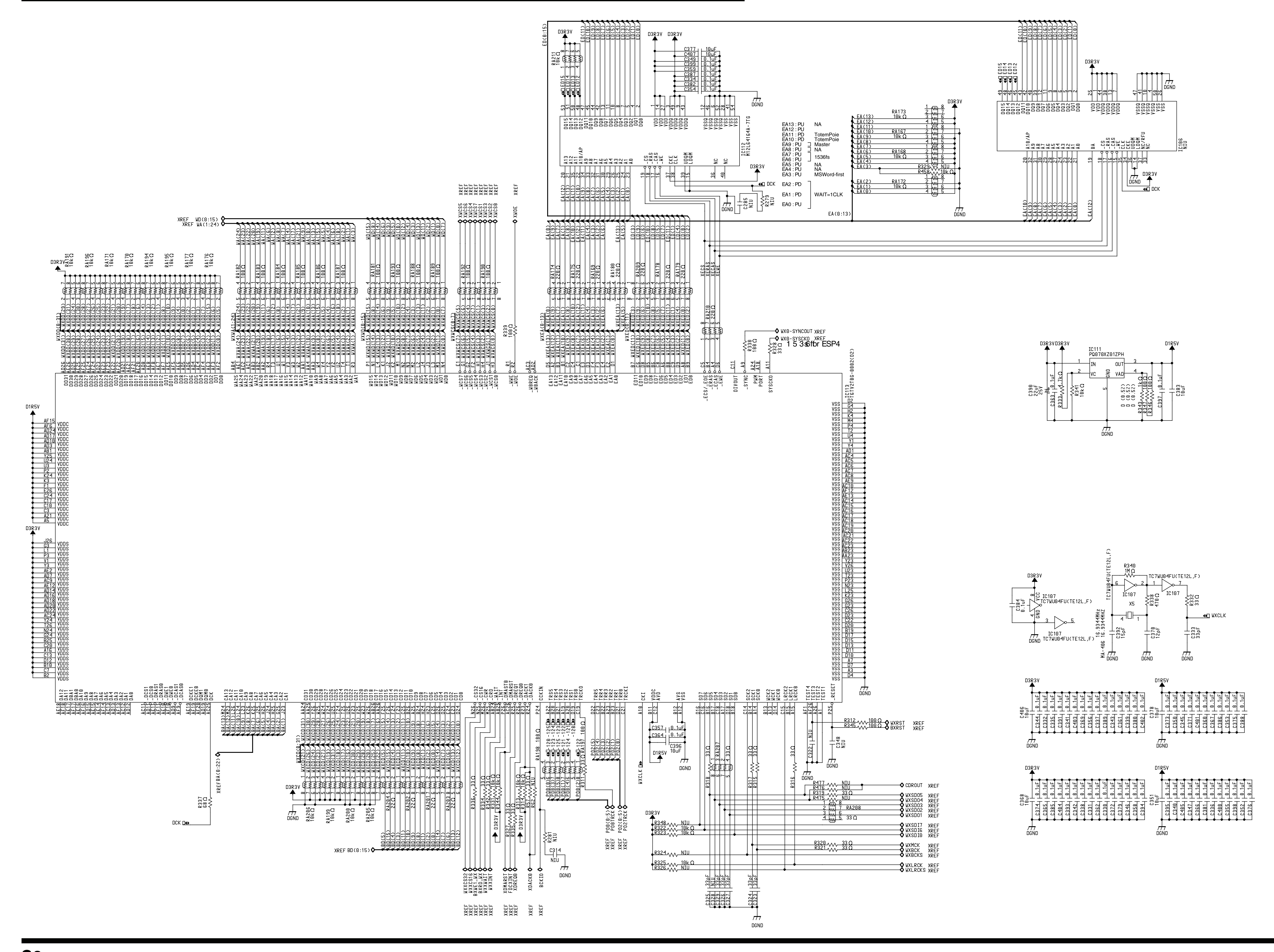
CIRCUIT DIAGRAM (MAIN BOARD 2/11)



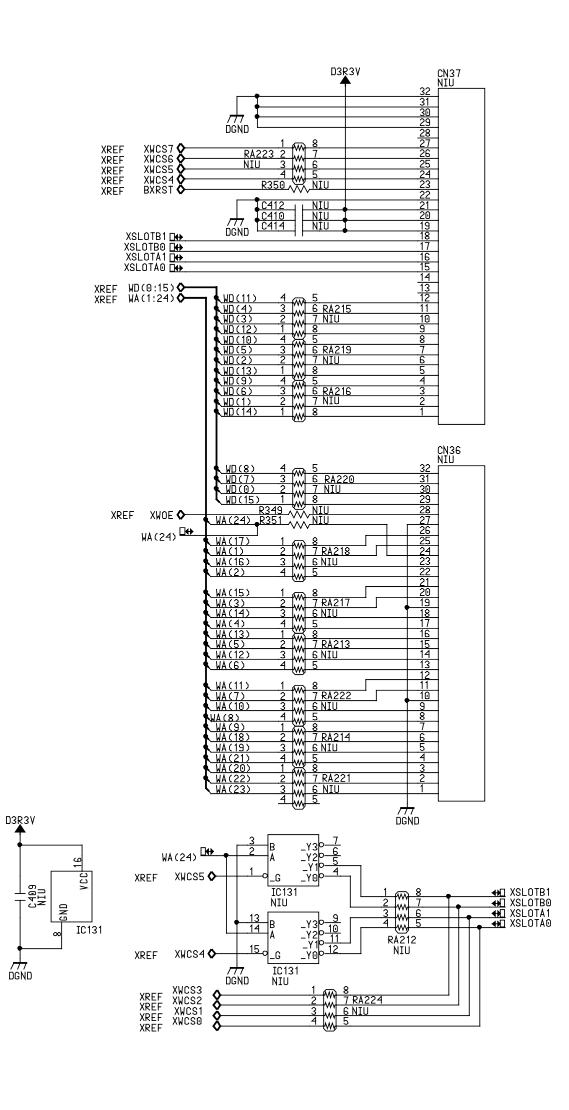
CIRCUIT DIAGRAM (MAIN BOARD 3/11)



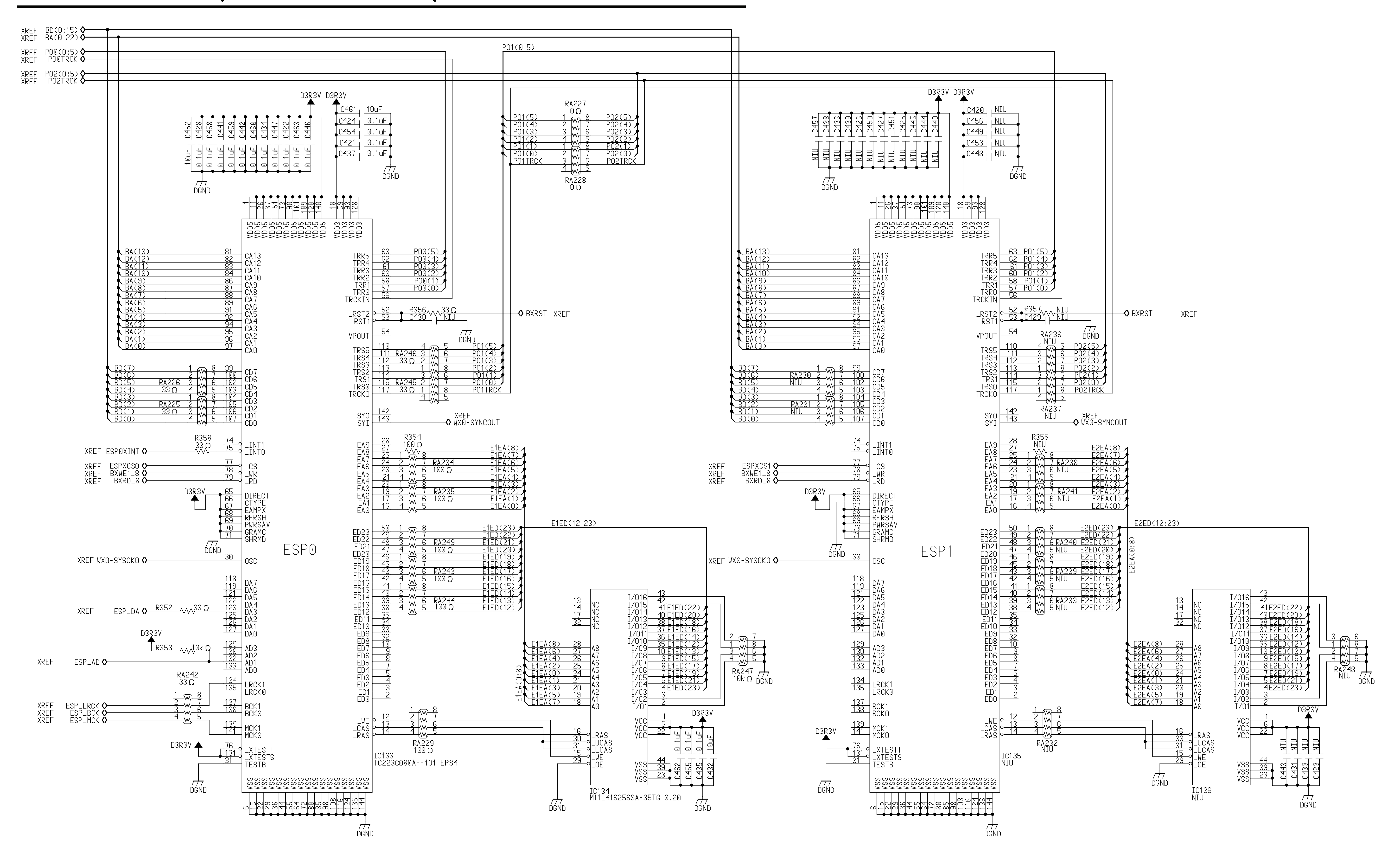
CIRCUIT DIAGRAM (MAIN BOARD 4/11)



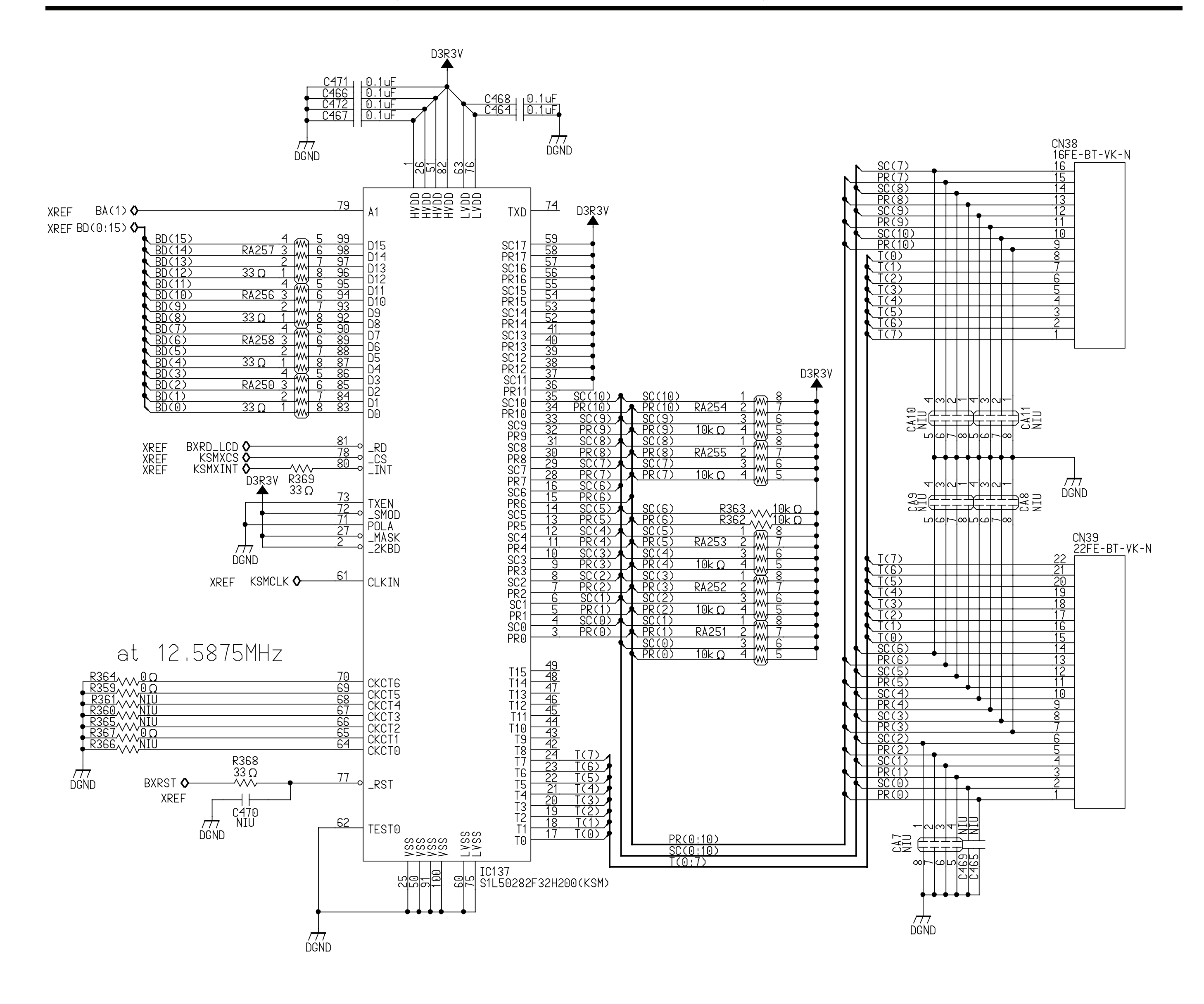
CIRCUIT DIAGRAM (MAIN BOARD 5/11)



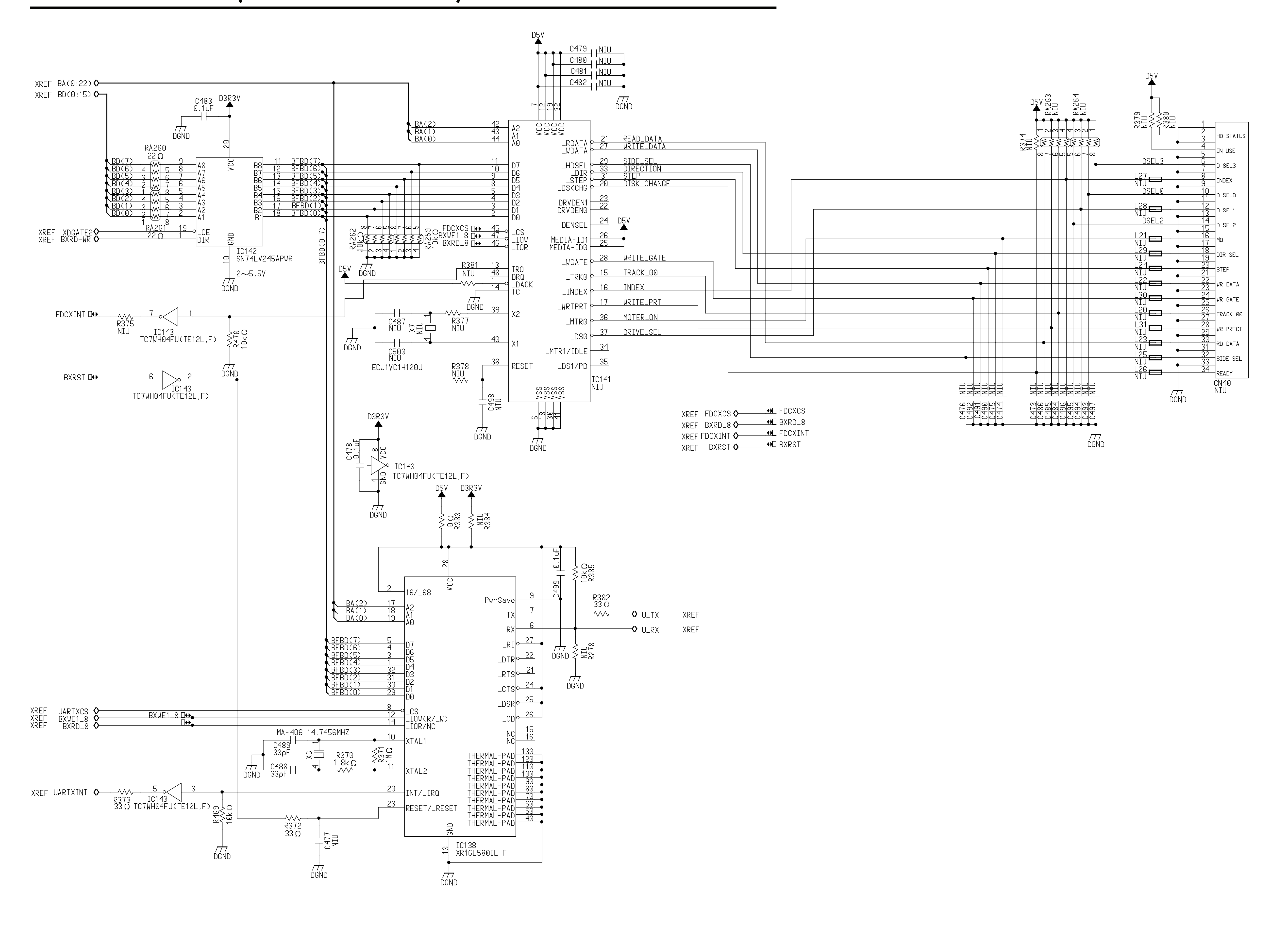
CIRCUIT DIAGRAM (MAIN BOARD 6/11)



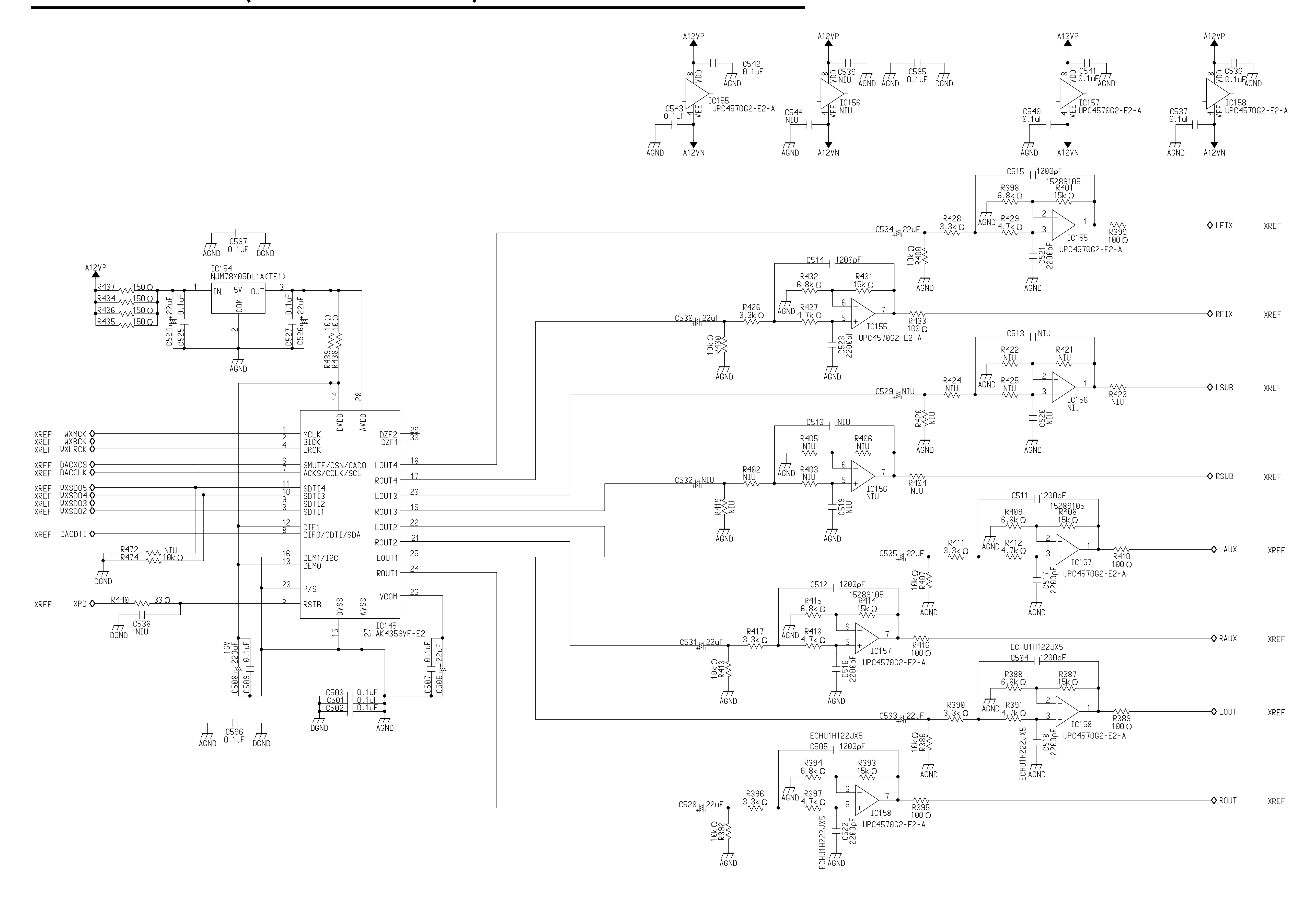
CIRCUIT DIAGRAM (MAIN BOARD 7/11)



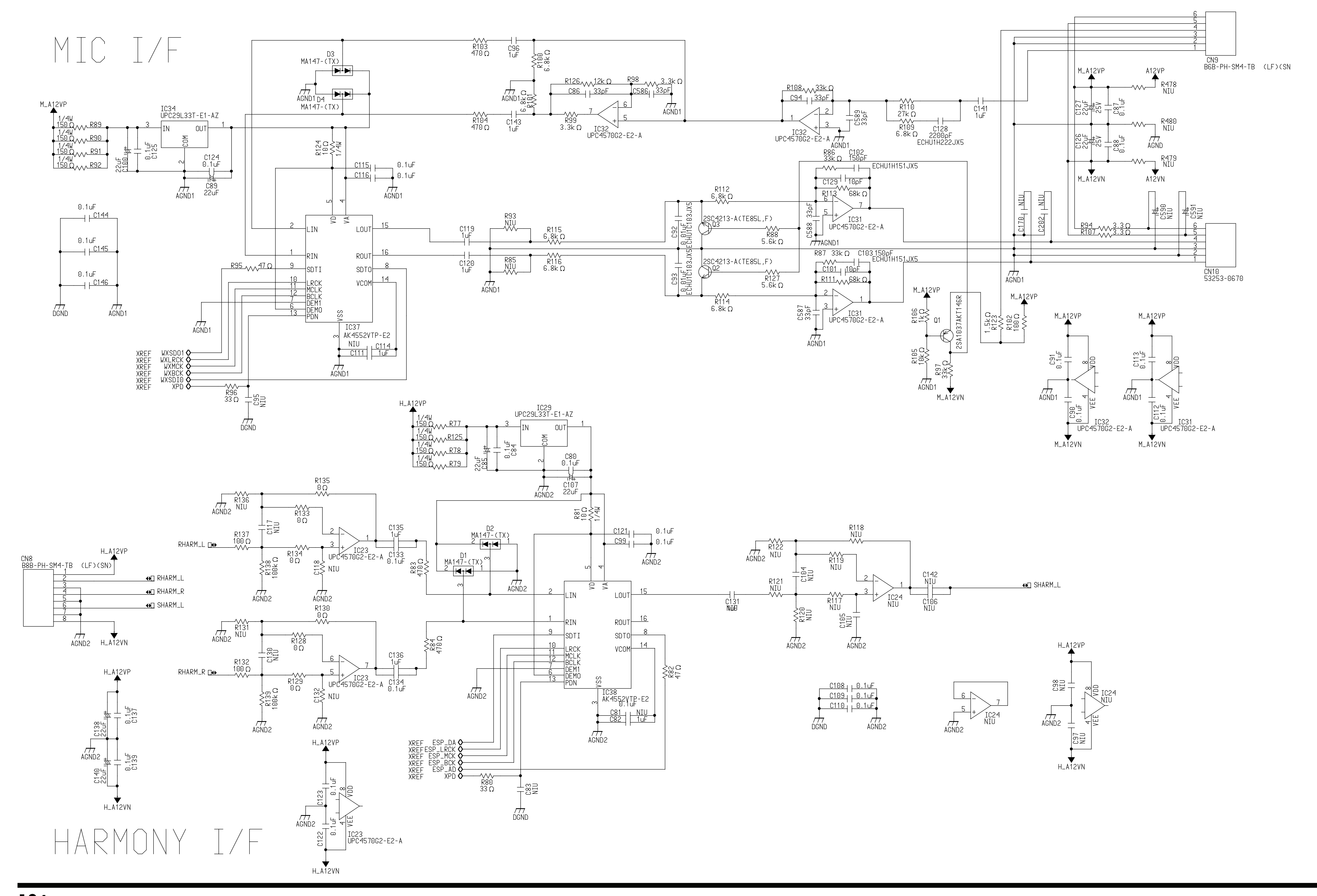
CIRCUIT DIAGRAM (MAIN BOARD 8/11)



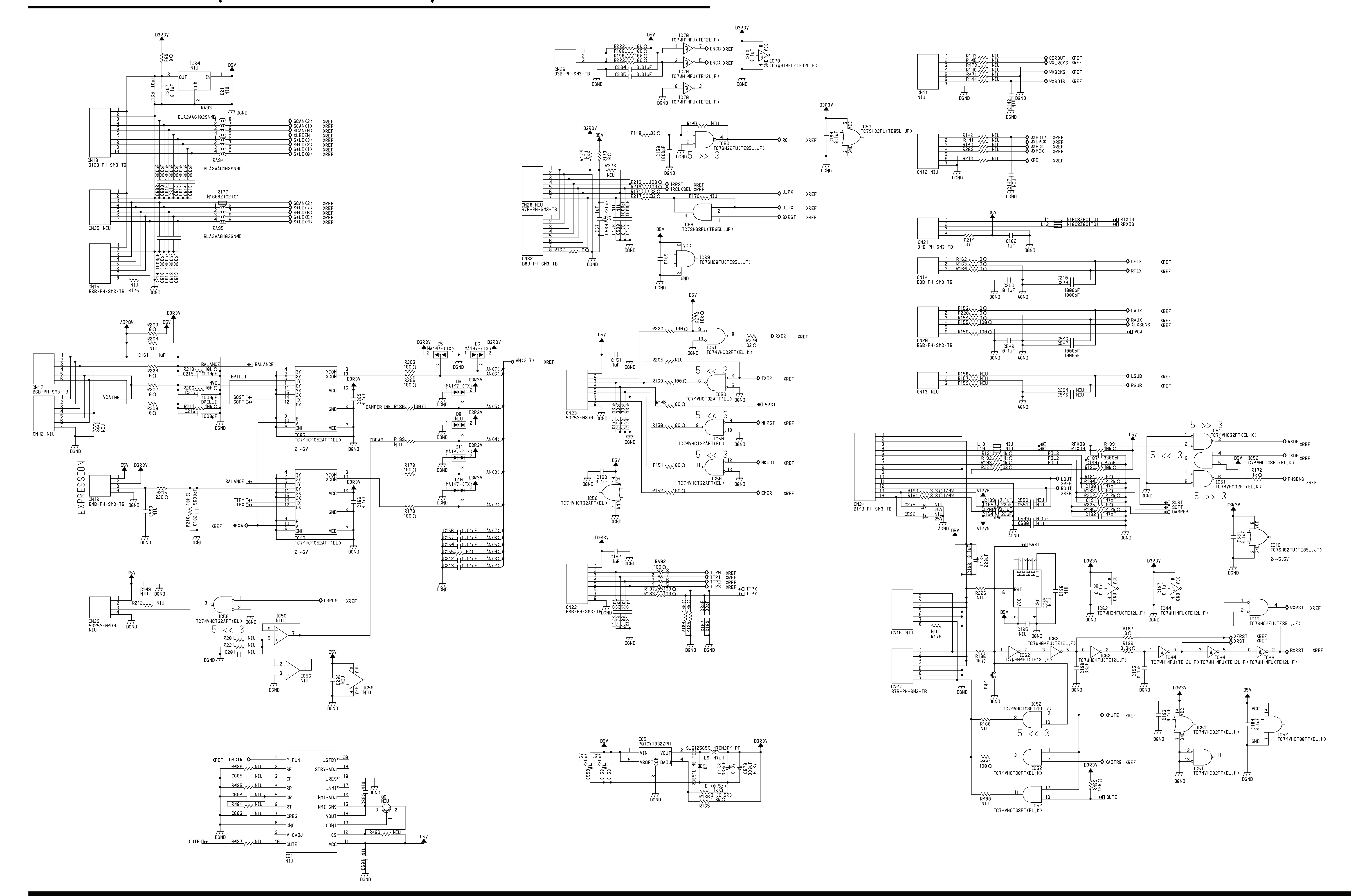
CIRCUIT DIAGRAM (MAIN BOARD 9/11)



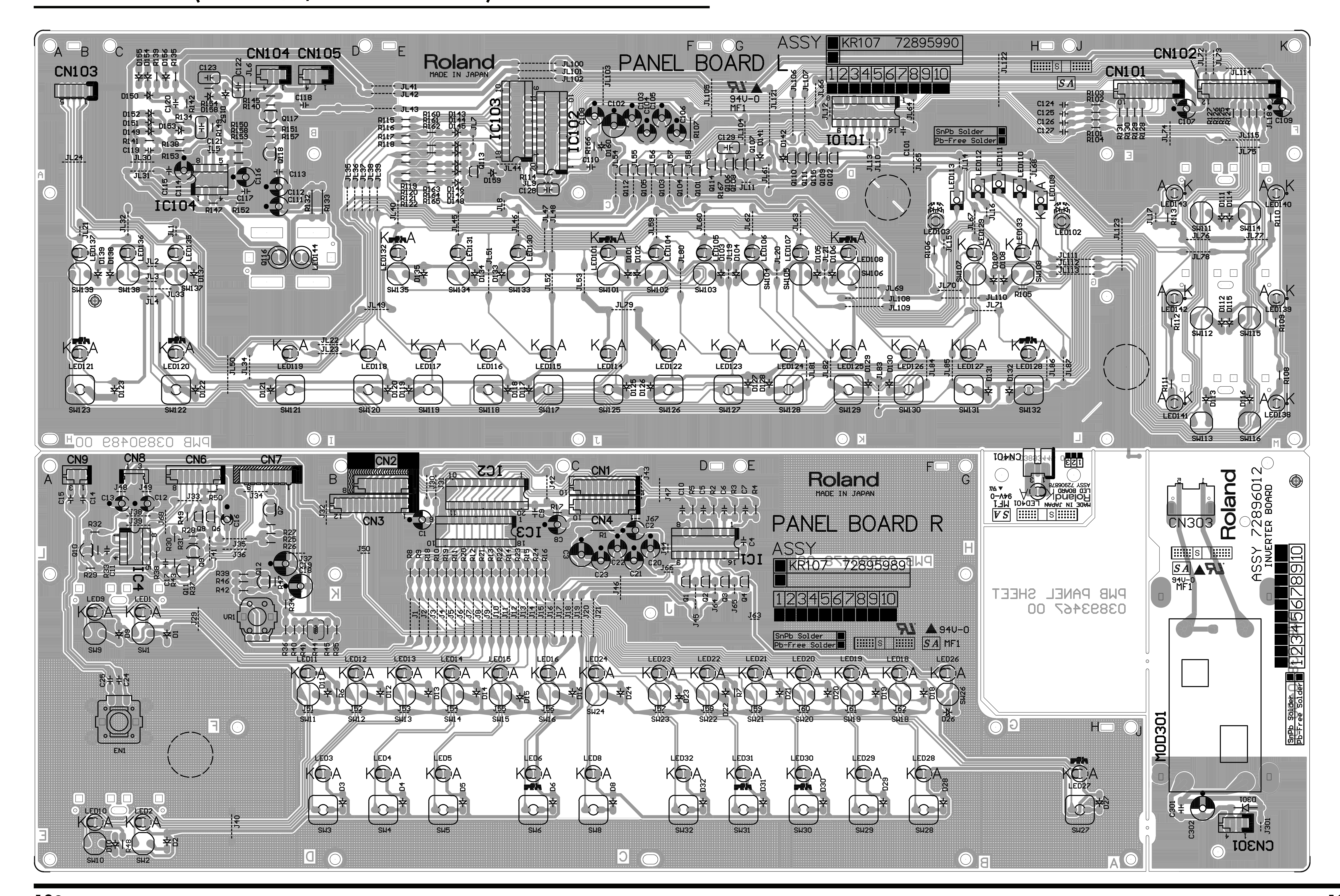
CIRCUIT DIAGRAM (MAIN BOARD 10/11)



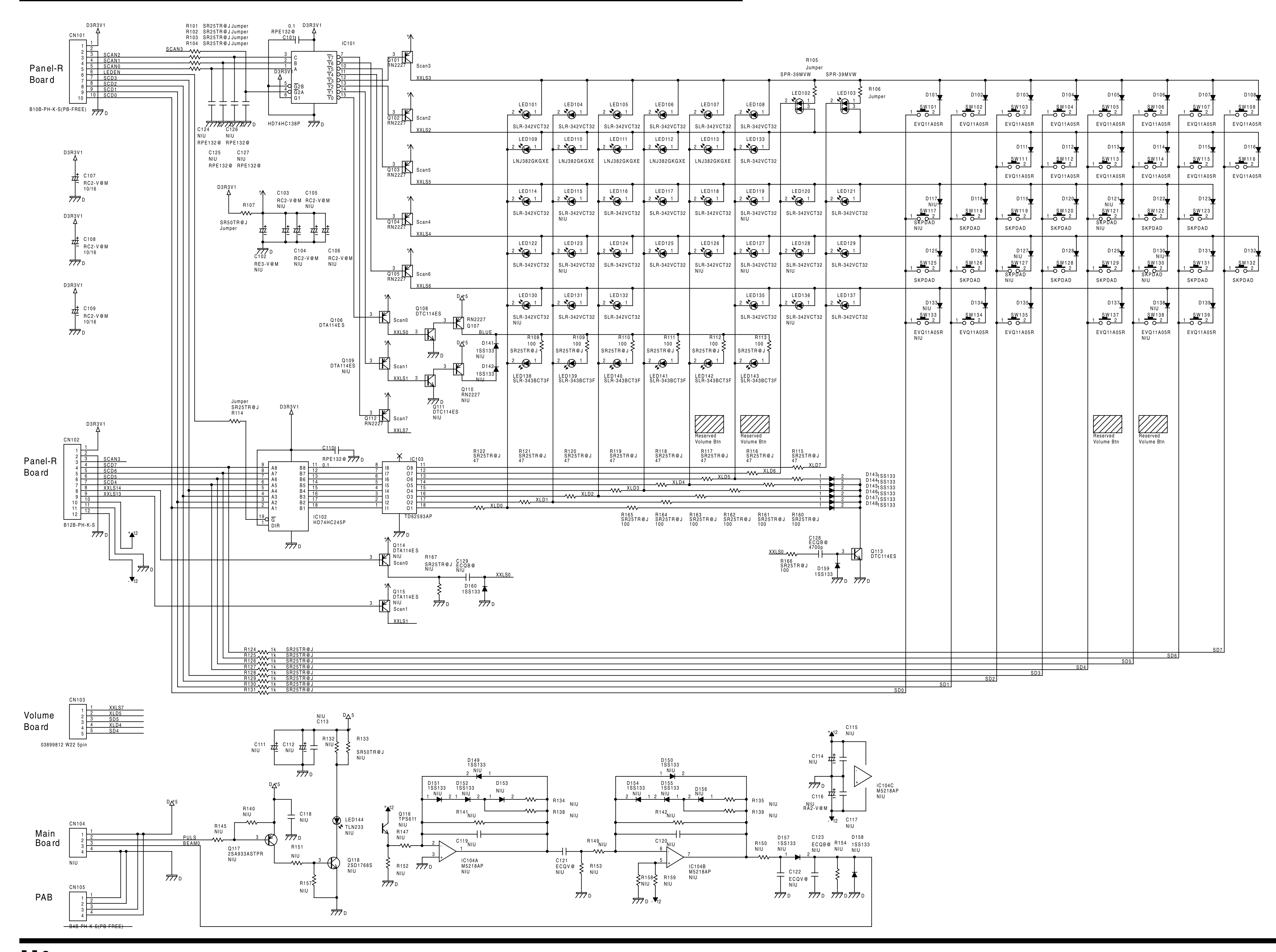
CIRCUIT DIAGRAM (MAIN BOARD 11/11)



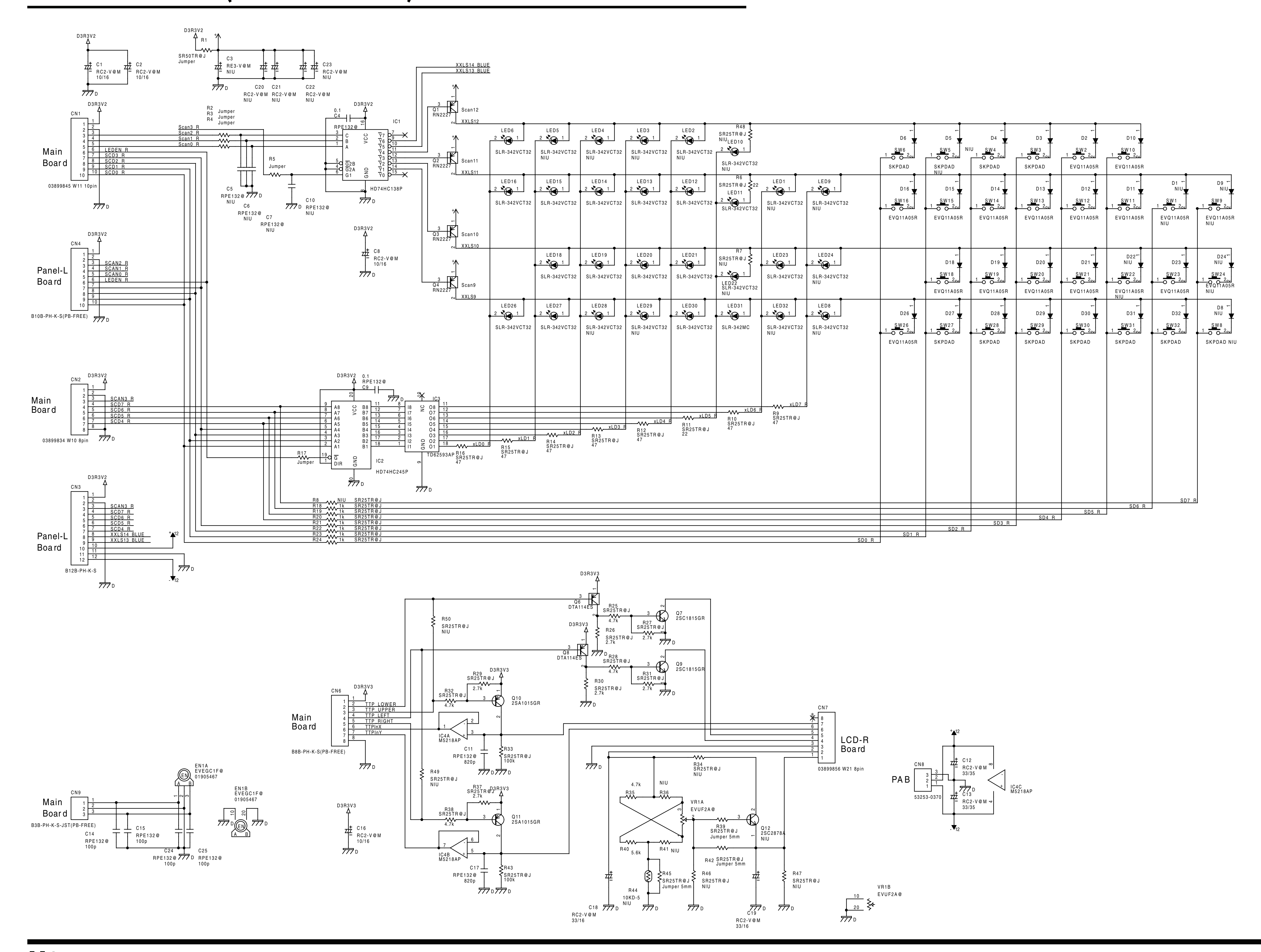
CIRCUIT BOARD (PANEL-L/R,INVERTER BOARD)



CIRCUIT DIAGRAM (PANEL-L BOARD)

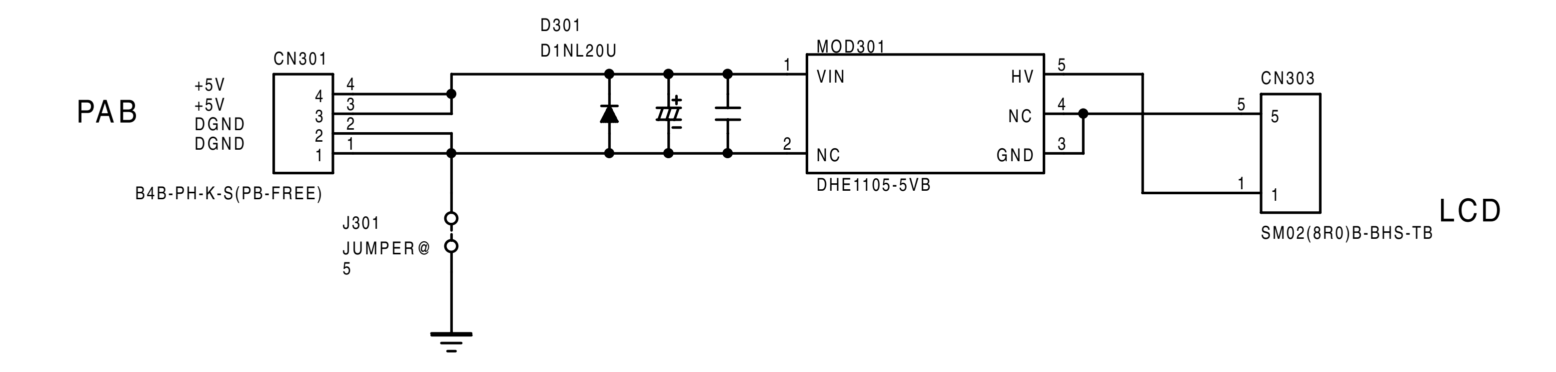


CIRCUIT DIAGRAM (PANEL-R BOARD)

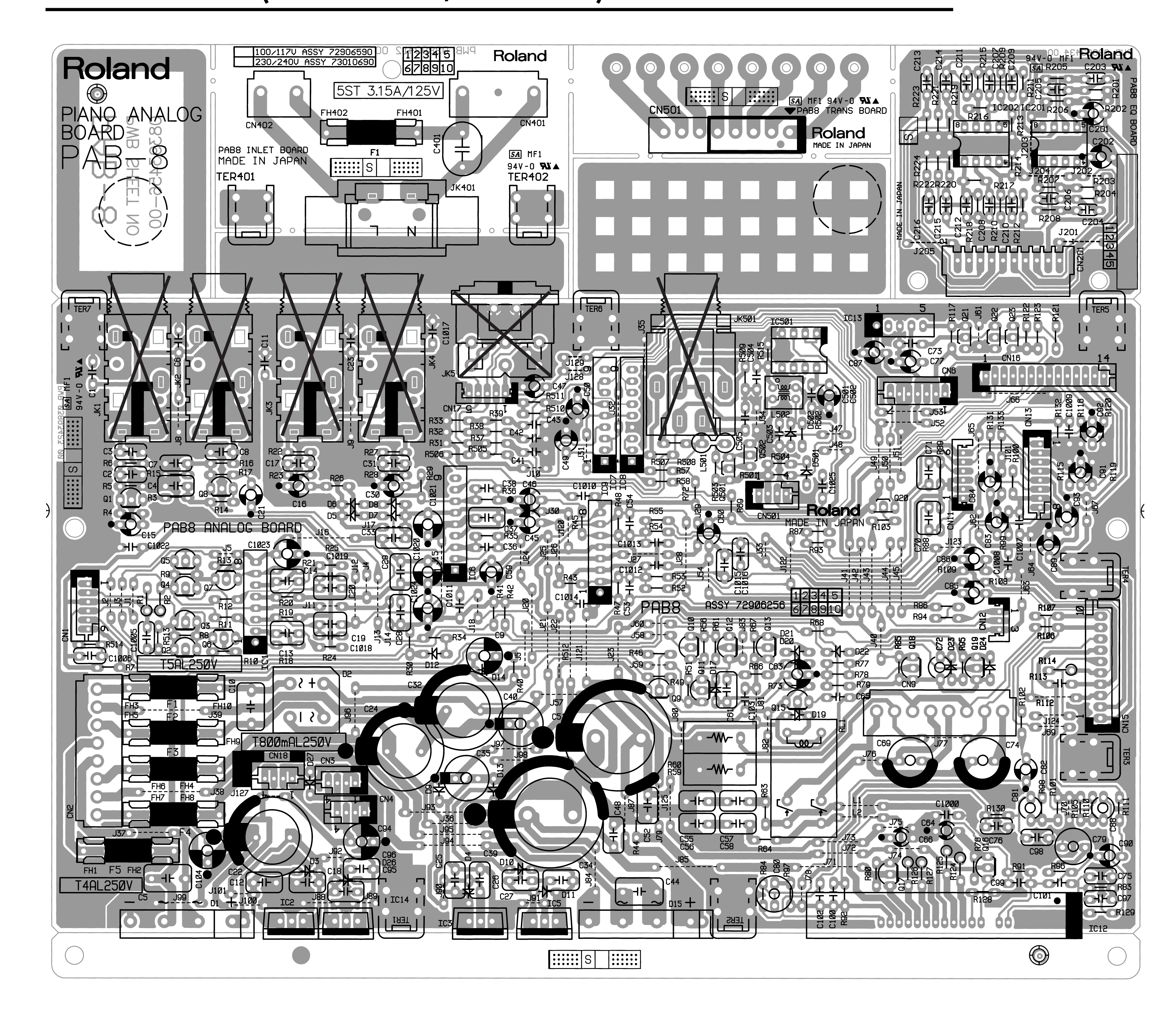


CIRCUIT DIAGRAM (INVERTER BOARD)

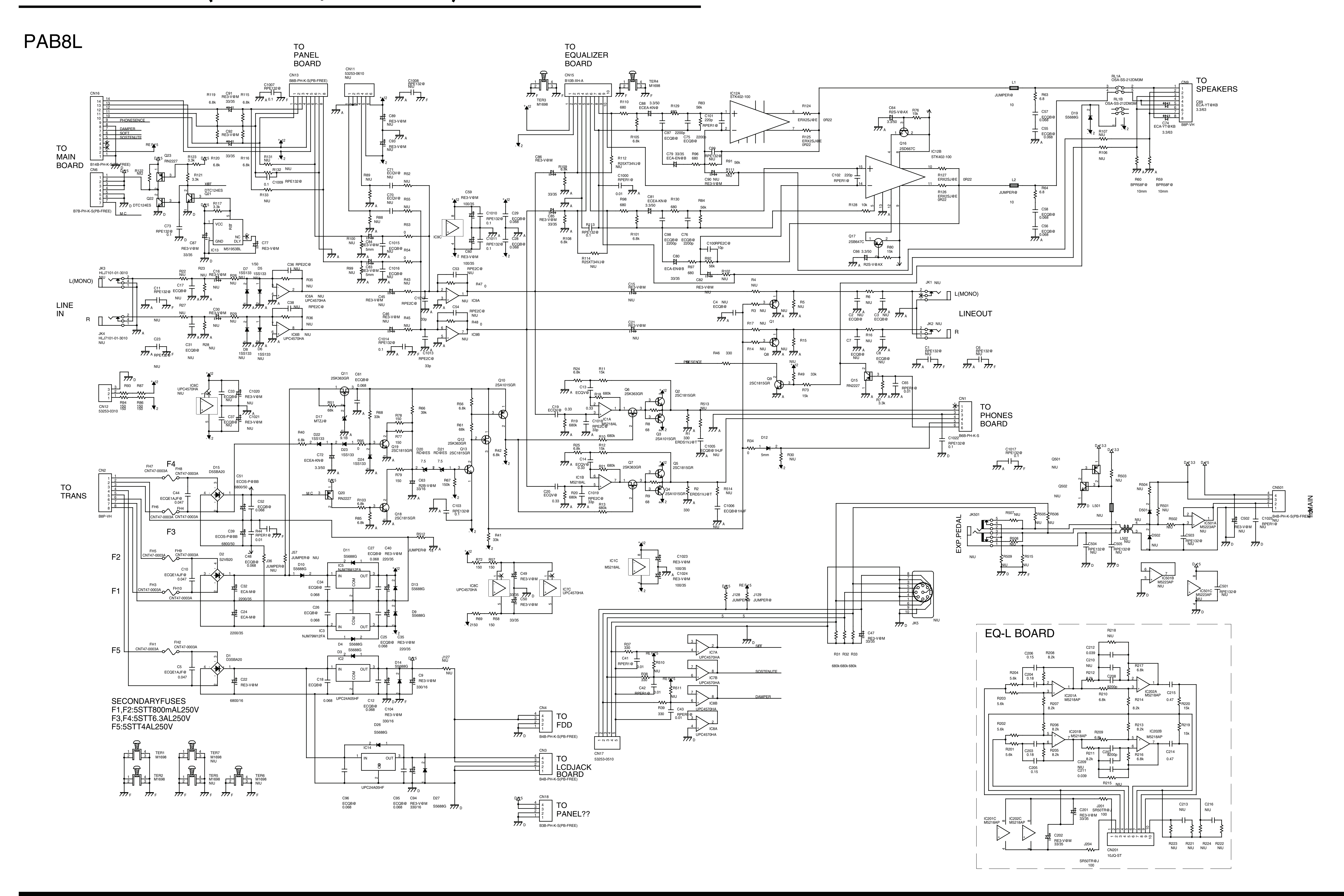
INVERTER BOARD



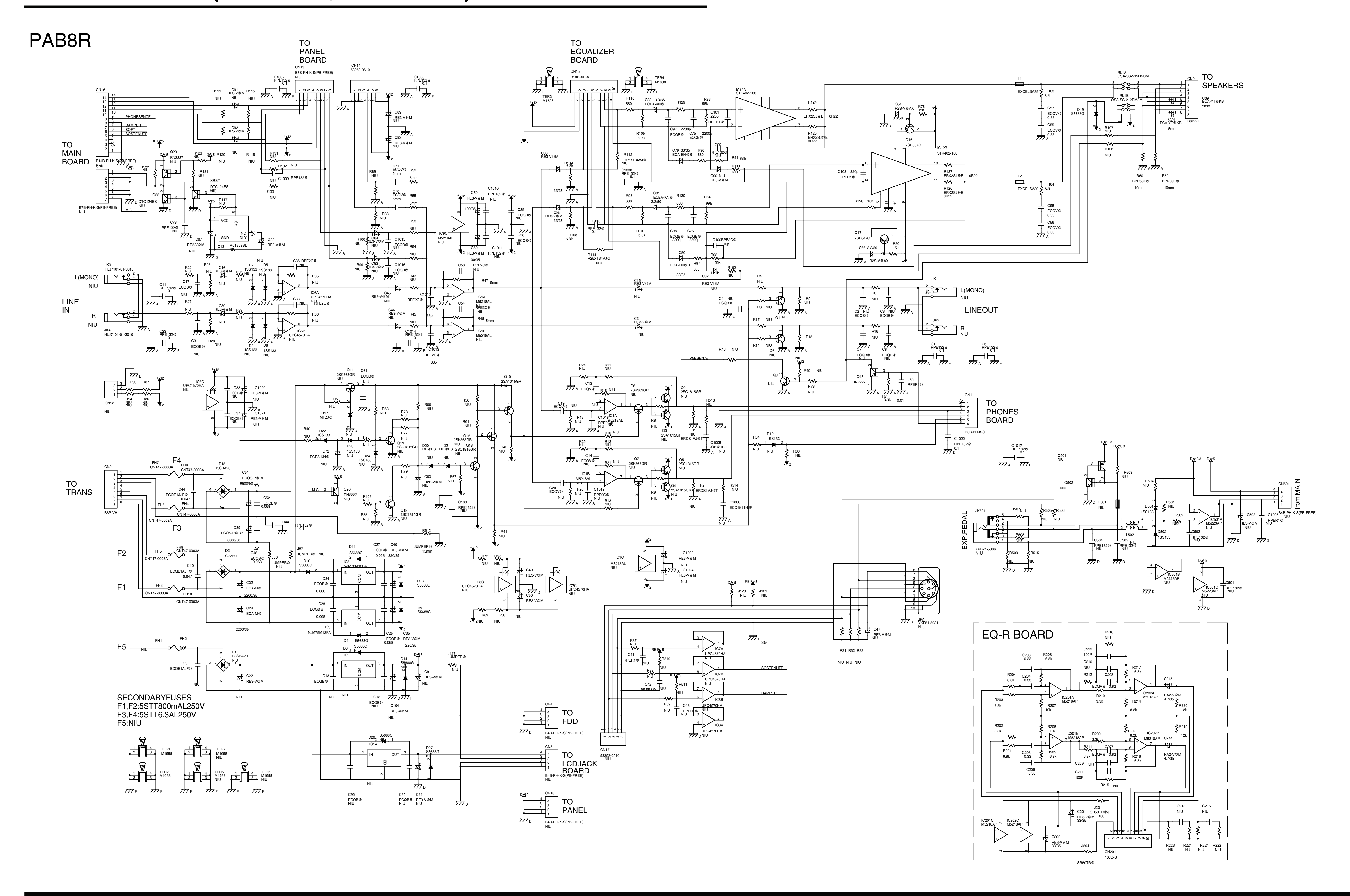
CIRCUIT BOARD (ANALOG-L/R,EQ BOARD)



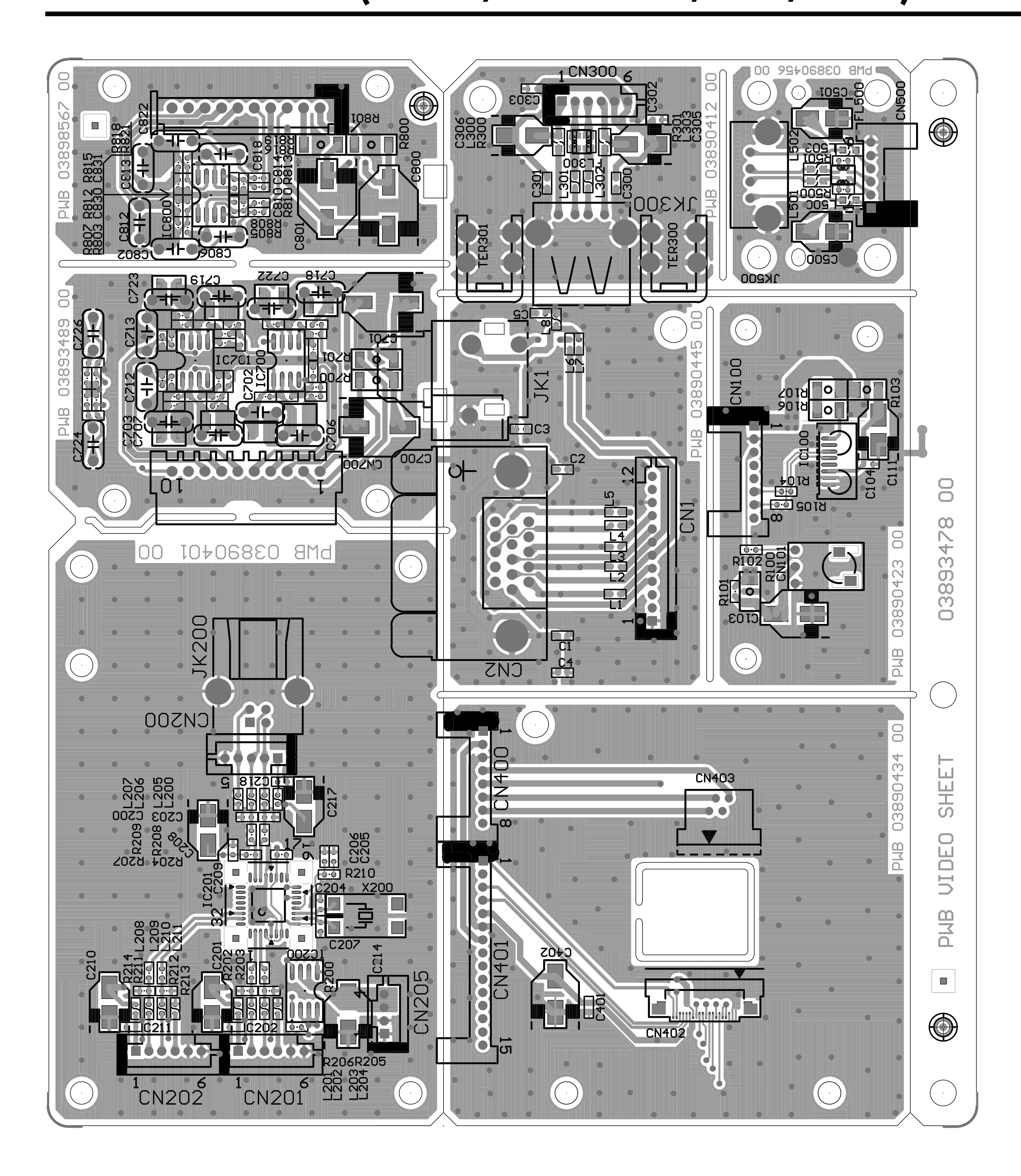
CIRCUIT DIAGRAM (ANALOG-L,EQ-L BOARD)

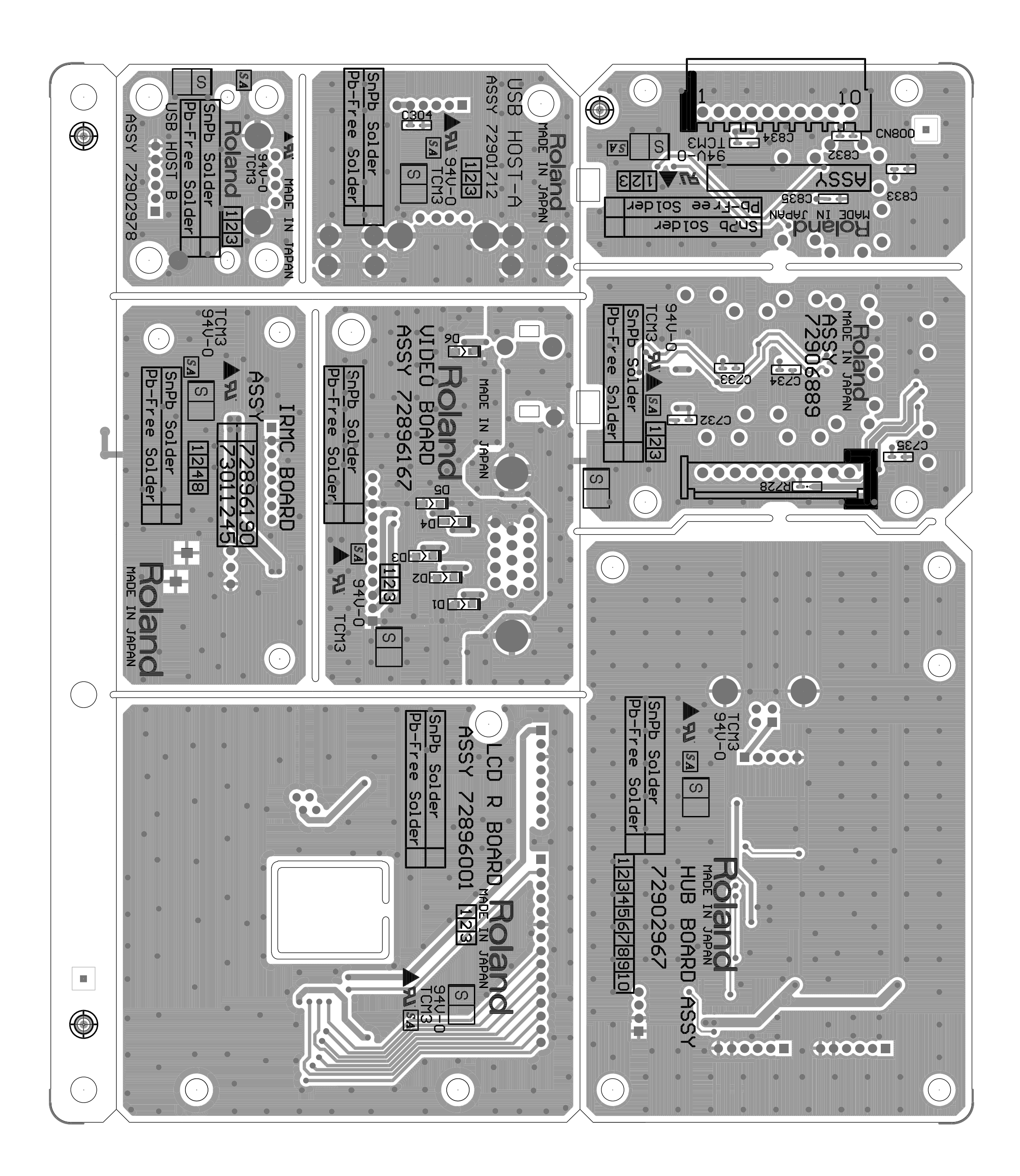


CIRCUIT DIAGRAM (ANALOG-R,EQ-R BOARD)



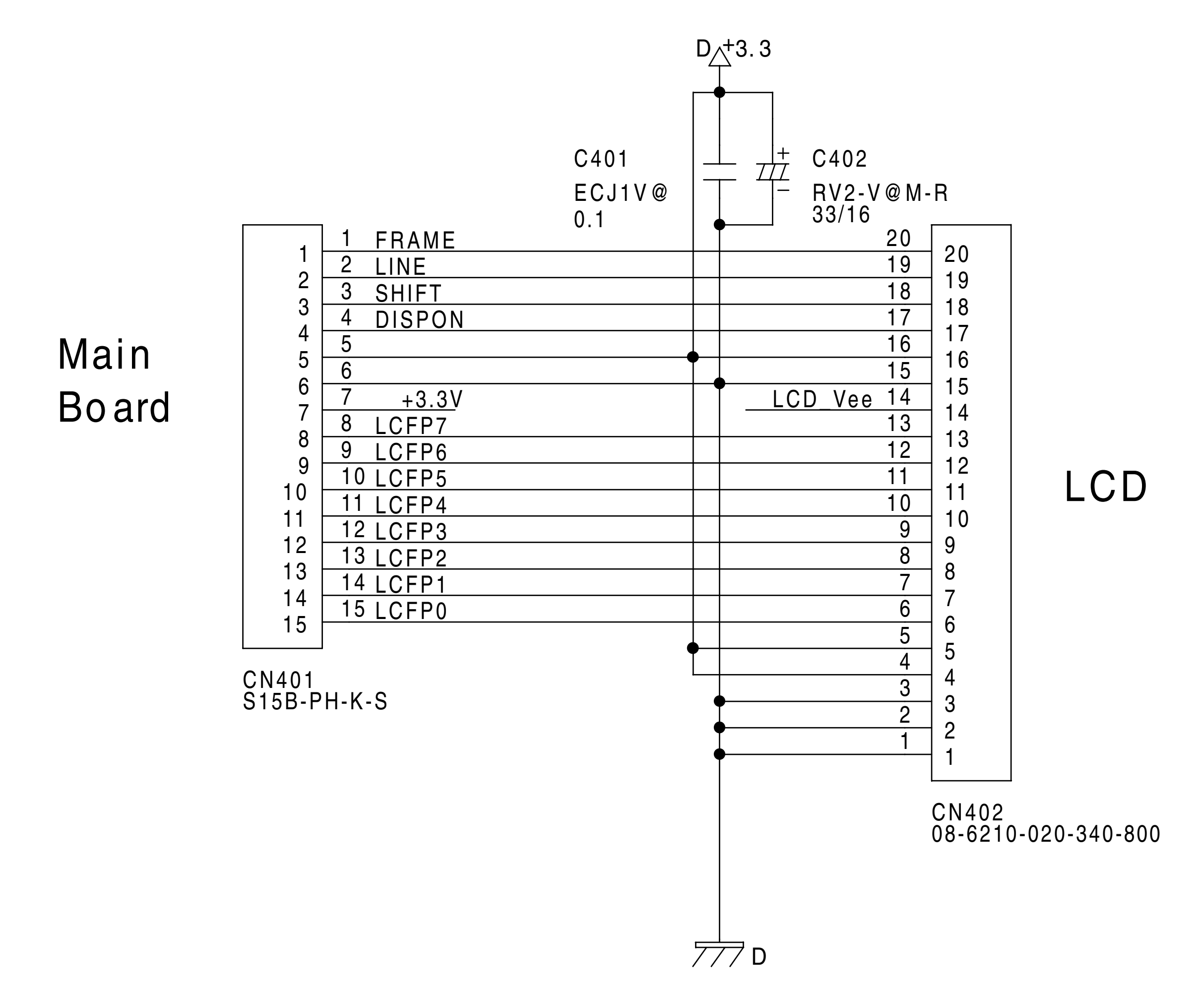
CIRCUIT BOARD (LCD-R,HOST-A/B,HUB,IRMC)

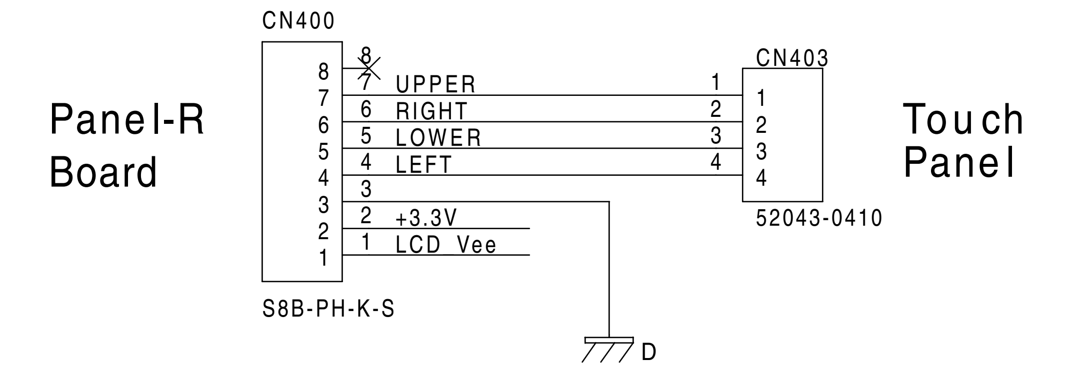



USB HOST-A
ASSY 72901712
USB HOST B
ASSY 72902978
VIDEO BOARD
ASSY 72896167
IRMC BOARD
ASSY
72896190
73011245
LCD R BOARD
ASSY 72896001
HUB BOARD ASSY
72902967
Roland
MADE IN JAPAN
SnPb Solder
Pb-Free Solder
CN800

CIRCUIT DIAGRAM (LCD-R)

LCD-R BOARD





CIRCUIT DIAGRAM (HOST-A/B)

HOST-A BOARD

FL300
ACM2012-900-2P-T
NIU

L300 RPC05T 0R0
L301 RPC05T 0R0
L302 RPC05T 0R0
L303 RPC05T 0R0

R300 RPC05T@J 0R0
R301 RPC05T@J 0R0

CN300
1
2
3
4
5
6

53253-06

JK300
1
2
3
4
10
20
YKF45-0027N

C300 ECJ1V@ 0.1
C301 ECJ1V@ 0.1
C302 ECJ1V@ 0.1
C303 ECJ1V@ 0.1
C304 ECJ1V@ NIU

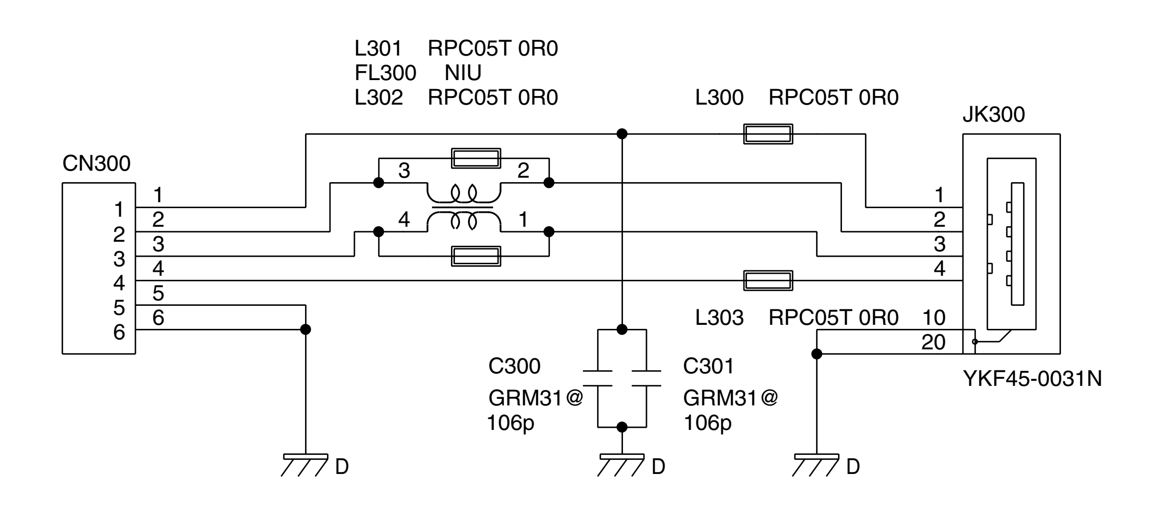
C305
NIU
C306
NIU

EEE-A@WR EEE-A@WR

D D D F

TER300 TER301
M1698 M1698
F F F

USB HOST-B BOARD

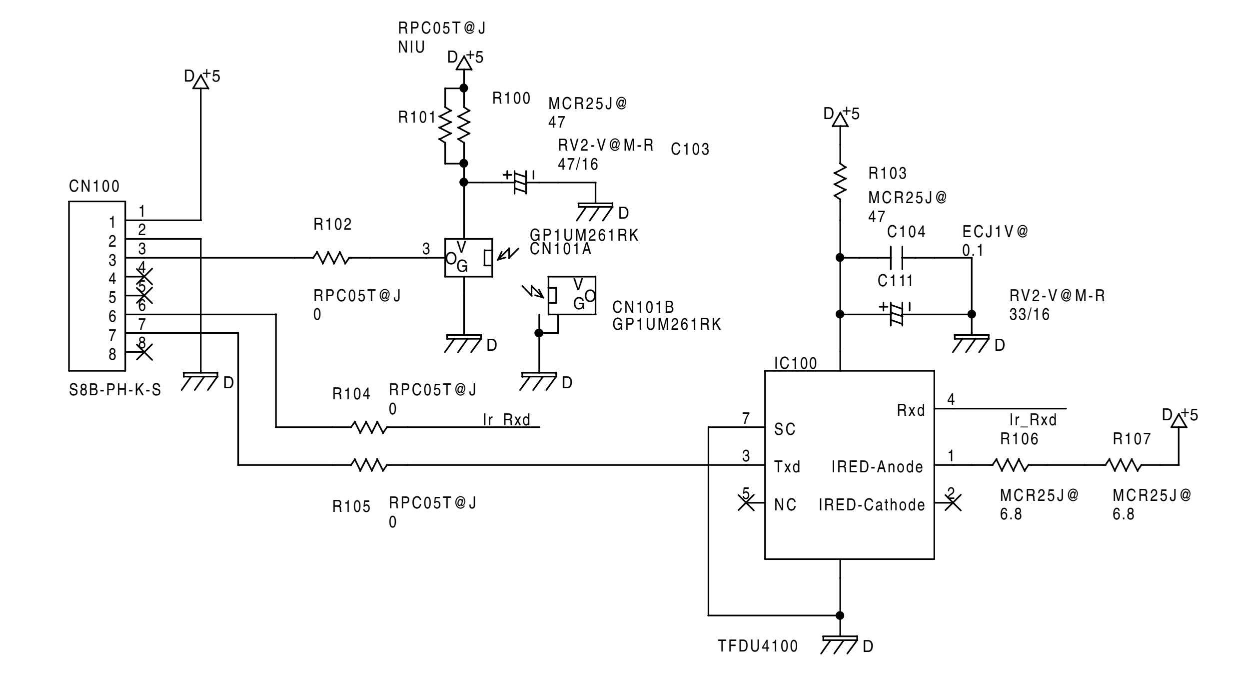


CIRCUIT DIAGRAM (HUB,IRMC)

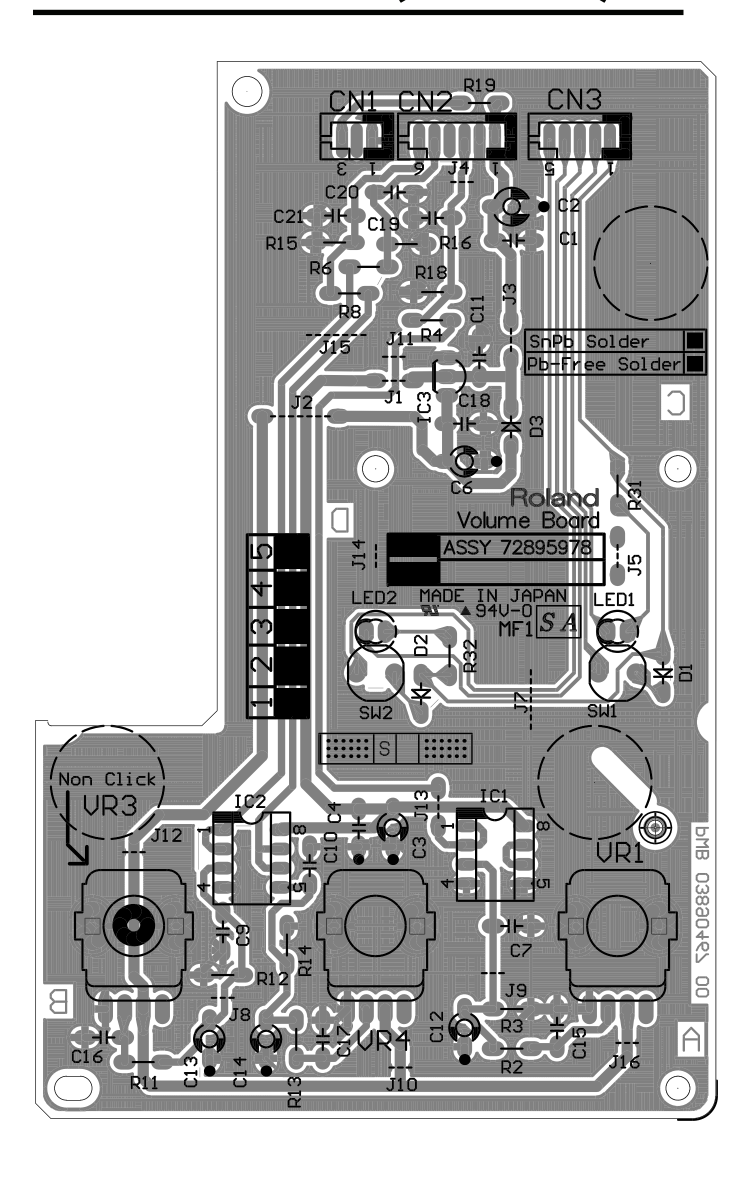
HUB BOARD

IC200
TPS2014DR
IN
IN
EN
OUT
OUT
OUT
OC
D+5
R200
RPC05T@J
47K
JK200
NIU
L200N1608Z@T01
RPC05T 0R0
L205EXCML16A@
RPC05T 0R0
L206EXCML16A@
RPC05T 0R0
L207N1608Z@T01
RPC05T 0R0
CN200
B5B-PH-K-S(PB-FREE)
C218
ECJ1V@
0.1
C217
EEE-A@WR
33/16
C200
ECJ1V@
47P
C203
ECJ1V@
47P
R208 22
RPC05T@J
R209 22
RPC05T@J
R207 1.5K
RPC05T@J
R204
RPC05T@J 100K
R210RPC05T@J 100
C205
ECJ1V@
0.01
C206
ECJ1V@
2200P
ECJ1V@ 5P
C204
X200
MA-406@
6.000MHZ
C207
ECJ1V@ 5P
C208
EEE-A@WR
33/16
C209
ECJ1V@
0.1
CN205
B4B-PH-K-S(PB-FREE)
C214
EEE-A@WR
100/16
IC201
AT43301-AC
OVC
PWR
SELF/BUS
STAT
CEXT1
LPSTAT
DM0
DP0
TEST
LFT
OSC2
OSC1
DM4
DP4
DM3
DP3
DM2
DP2
DM1
DP1
NC
NC
NC
NC
NC
NC
NC
48
R202RPC05T@J 22
R203RPC05T@J 22
R205
RPC05T@J
15K
R206
RPC05T@J
15K
L201N1608Z@T01
RPC05T 0R0
L202EXCML16A@
RPC05T 0R0
L203EXCML16A@
RPC05T 0R0
L204N1608Z@T01
RPC05T 0R0
C201
EEE-A@WR
33/16
C202
ECJ1V@
0.1
CN201
53253-06
R211RPC05T@J 22
R212RPC05T@J 22
R213
RPC05T@J
15K
R214
RPC05T@J
15K
L208N1608Z@T01
RPC05T 0R0
L209EXCML16A@
RPC05T 0R0
L210EXCML16A@
RPC05T 0R0
L211N1608Z@T01
RPC05T 0R0
C210
EEE-A@WR
33/16
C211
ECJ1V@
0.1
CN202
B6B-PH-K-S

IRMC BOARD



CIRCUIT BOARD (VOLUME)



CIRCUIT DIAGRAM (VOLUME)

VOLUME BOARD

REF+5
D+3.3
D1NL20U
D3
IC3
S-812C33AY-Z-G
IN
OUT
GND
C11
RPE132@
0.1
C18
RPE132@
0.1
C6
10/16
REF

C1 C2
RPE132@ 10/16
0.1

MAIN
Board
CN2
B6B-PH-K-S
PART BAL
MVOL
VOL

M5223AP
IC1A
R3
33k
SR25TR@J
R2
680
C7
RPE132@
0.1
C12
RC2-V@M
1/50
C15
RPE2C@
47p
VR1A
RK11K113@
13289186
Part
Balance

IC2C
M5223AP
IC1C
M5223AP
C4
RPE132@
0.1
C3
10/16

R4 100
R6 100
R8 100
IC2A
M5223AP
R12
33k
R11
SR25TR@J
680
C9
RPE132@
0.1
C13
RC2-V@M
1/50
C16
RPE2C@
47p
VR3A
RK11K113@
13289185
Volume

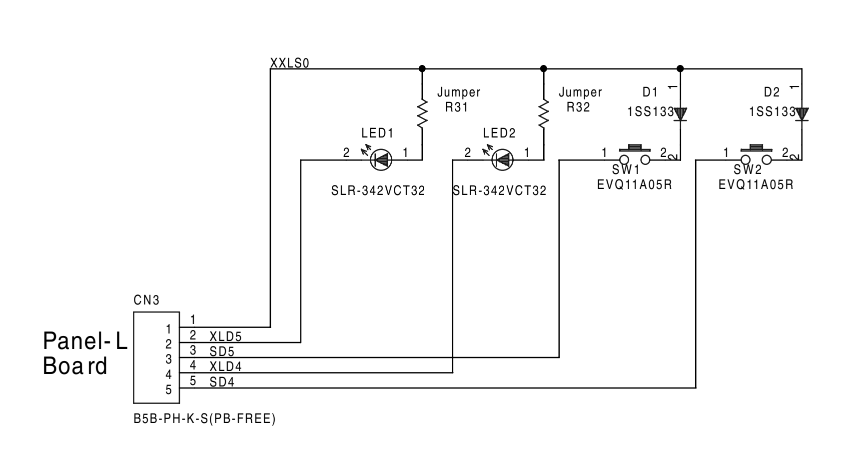
C19
RPE132@
0.1
C21
RPE132@
0.1
R18
SR25TR@J
100K
C20
RPE132@
0.1
R15
SR25TR@J
100K
R16
SR25TR@J
100K

IC1B
M5223AP

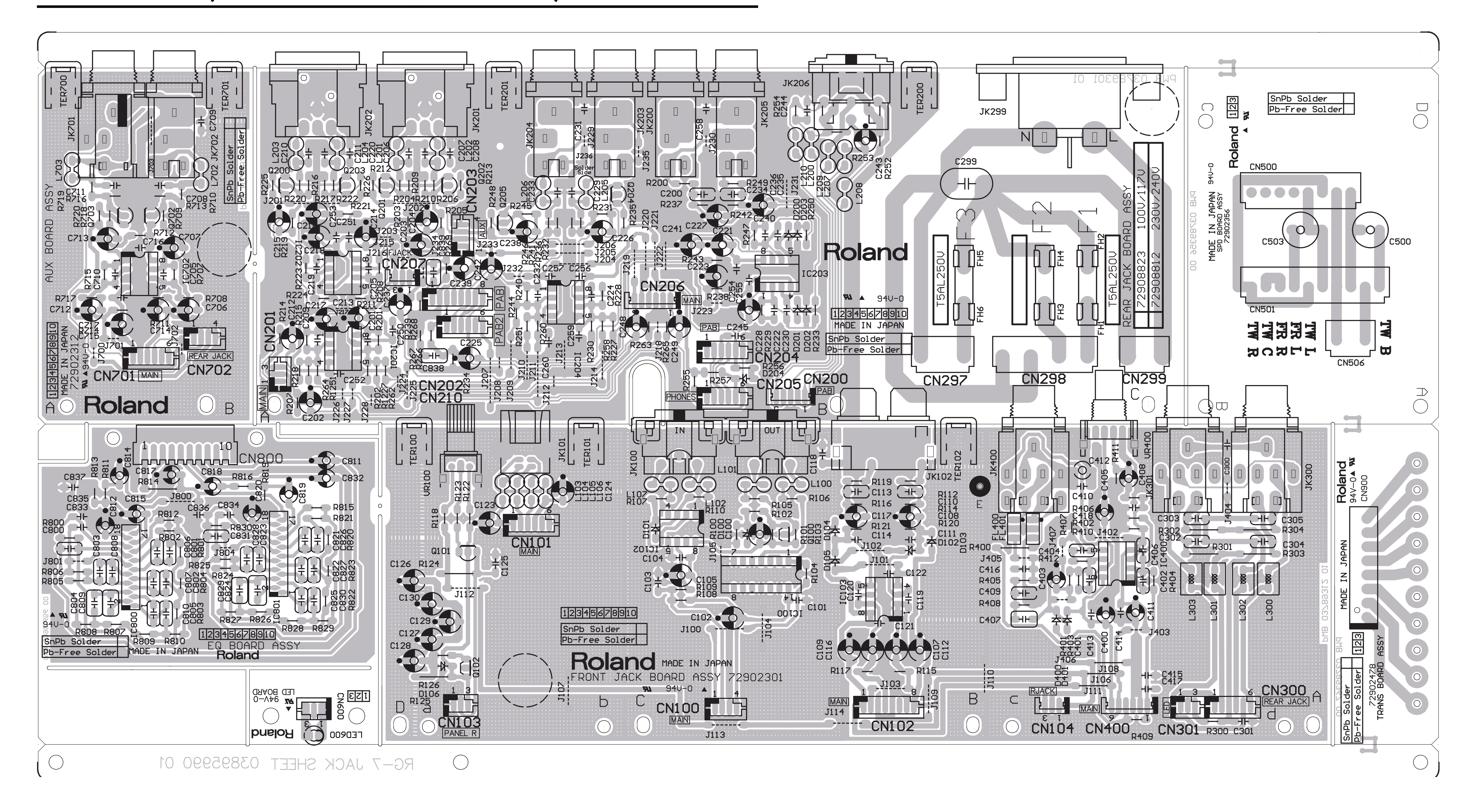
R14
SR25TR@J
33k
R13
SR25TR@J
680
M5223AP
IC2B
C10
0.1
RPE132@
C14
RC2-V@M
1/50
C17
RPE2C@
47p
VR4A
RK11K113@
13289186
Brilliance

LED
Board
CN1
B3B-PH-K-S-JST(PB-FREE)
R19
680

VR1B
RK11K113@
13289186
VR3B
RK11K113@
13289185
VR4B
RK11K113@
13289185

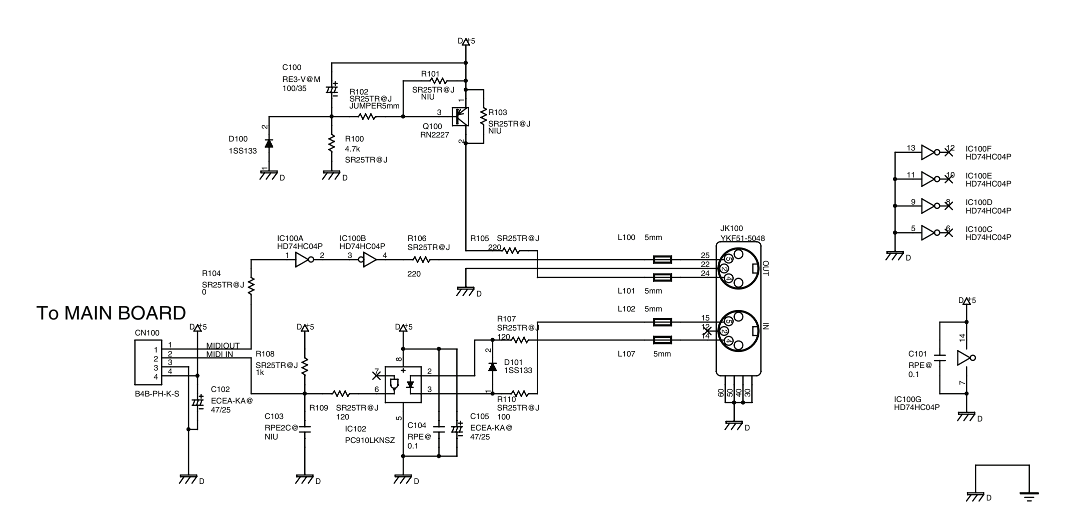


CIRCUIT BOARD (FRONT/REAR JACK,AUX BOARD)

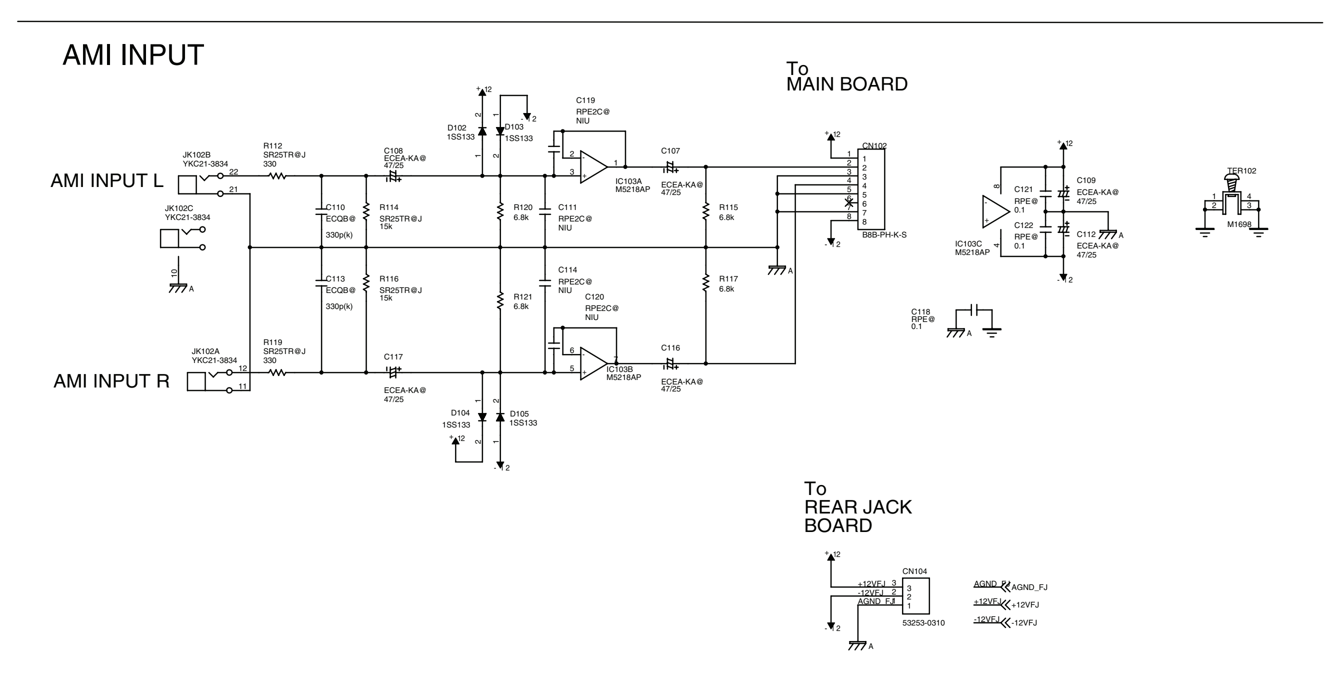


CIRCUIT DIAGRAM (FRONT JACK)

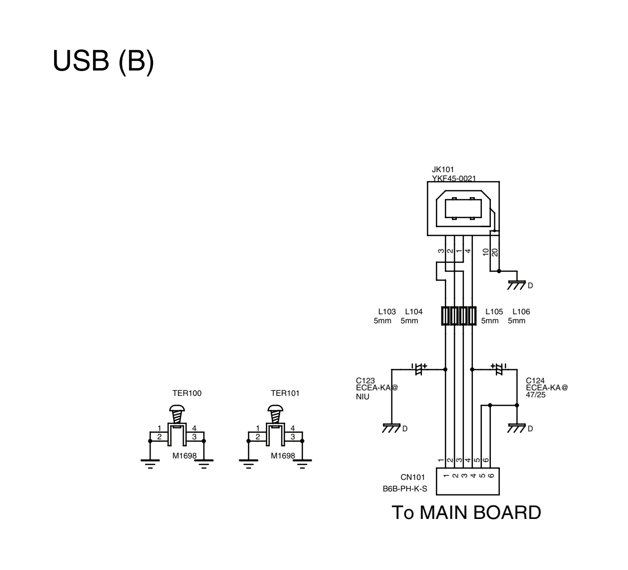
MIDI



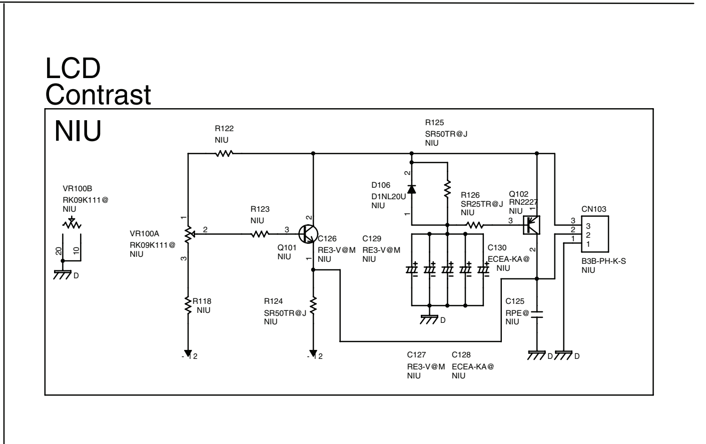
AMI INPUT

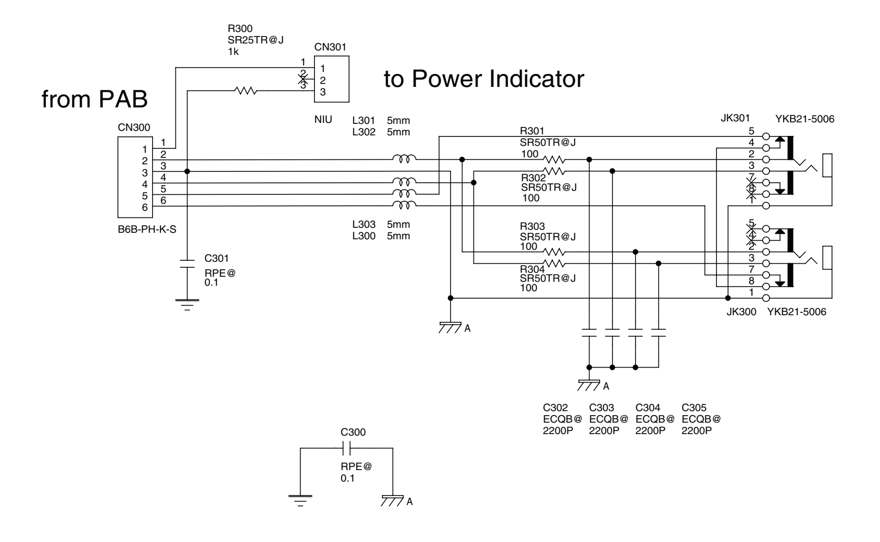


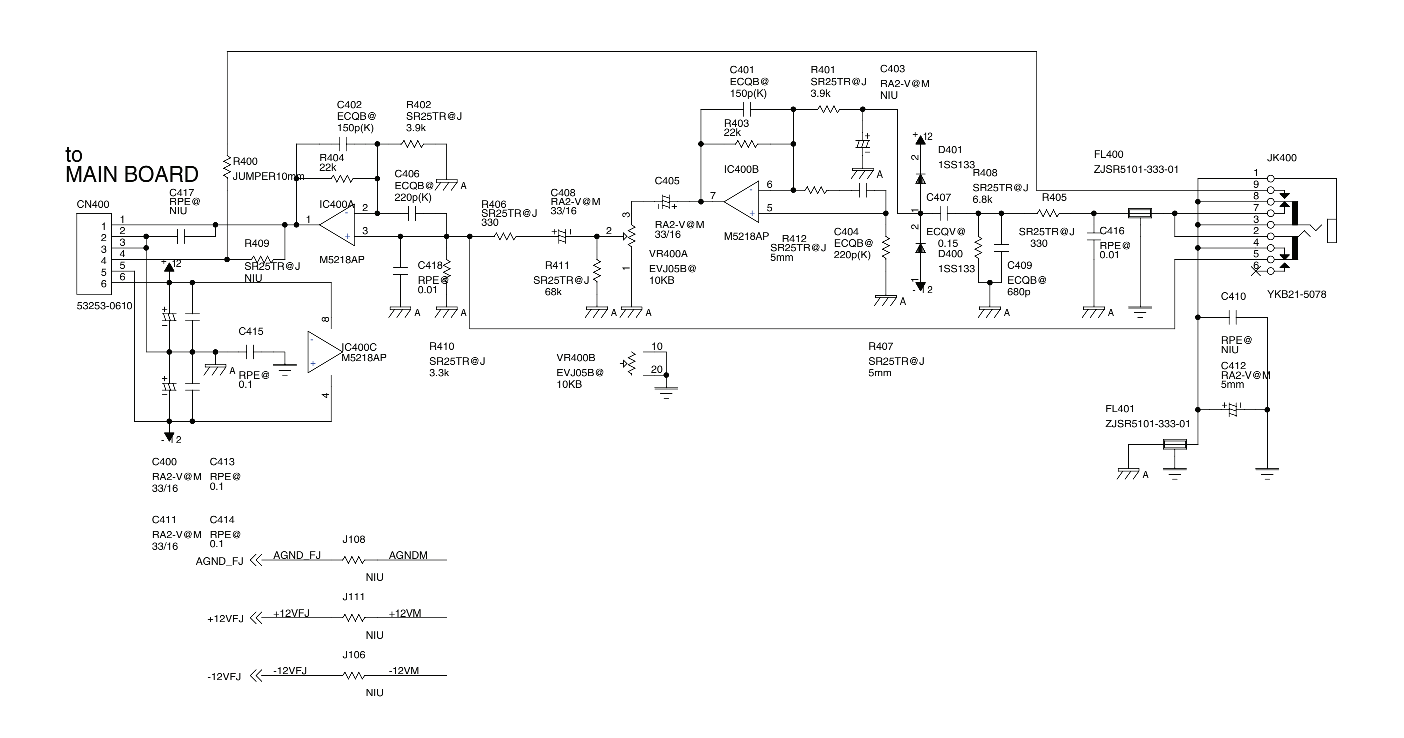
USB (B)



LCD Contrast

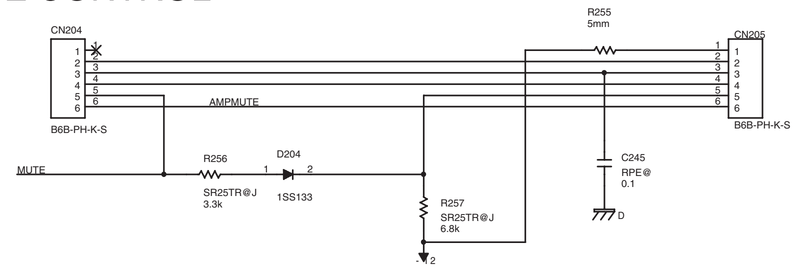



from PAB
to Power Indicator
CN300
B6B-PH-K-S
CN301
R300
SR25TR@J
1k
NIU
L301 5mm
L302 5mm
L303 5mm
L300 5mm
R301
SR50TR@J
100
R302
SR50TR@J
100
R303
SR50TR@J
100
R304
SR50TR@J
100
JK301 YKB21-5006
JK300 YKB21-5006
C301
RPE@
0.1
C302 ECQB@ 2200P
C303 ECQB@ 2200P
C304 ECQB@ 2200P
C305 ECQB@ 2200P
C300
RPE@
0.1

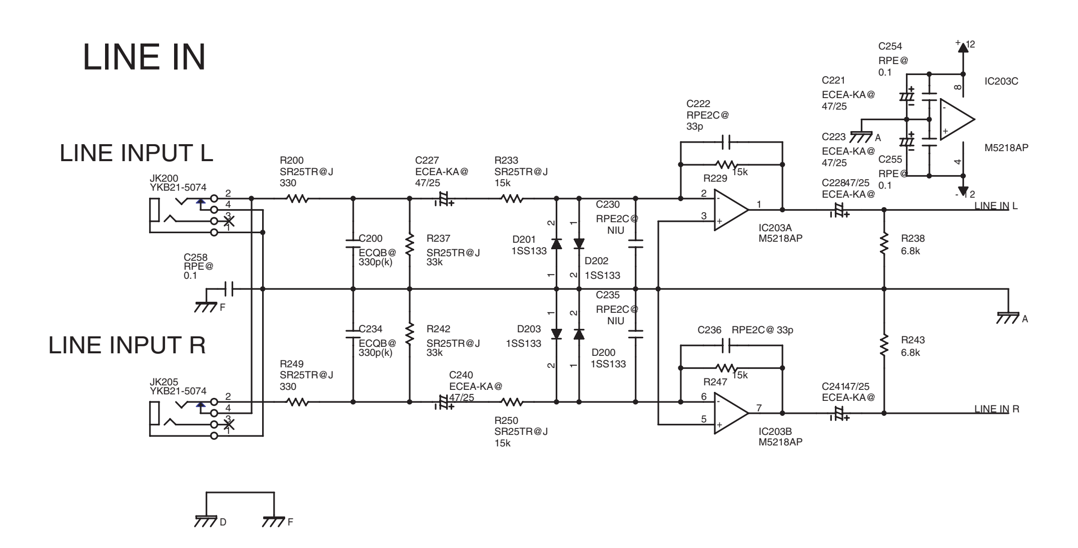

to
MAIN BOARD
CN400
53253-0610
C417
RPE@
NIU
R400
JUMPER10mm
R409
SR25TR@J
NIU
C402
ECQB@
150p(K)
R402
SR25TR@J
3.9k
R404
22k
C406
ECQB@
220p(K)
IC400A
M5218AP
C418
RPE@
0.01
R406
SR25TR@J
330
C408
RA2-V@M
33/16
R411
SR25TR@J
68k
C405
RA2-V@M
33/16
VR400A
EVJ05B@
10KB
C401
ECQB@
150p(K)
R401
SR25TR@J
3.9k
C403
RA2-V@M
NIU
R403
22k
IC400B
M5218AP
R412
SR25TR@J
5mm
C404
ECQB@
220p(K)
D401
1SS133
D400
1SS133
C407
ECQV@
0.15
R408
SR25TR@J
6.8k
C409
ECQB@
680p
R405
SR25TR@J
330
C416
RPE@
0.01
FL400
ZJSR5101-333-01
JK400
YKB21-5078
C410
RPE@
NIU
C412
RA2-V@M
5mm
FL401
ZJSR5101-333-01
C415
RPE@
0.1
IC400C
M5218AP
R410
SR25TR@J
3.3k
VR400B
EVJ05B@
10KB
R407
SR25TR@J
5mm
C400
RA2-V@M
33/16
C413
RPE@
0.1
C411
RA2-V@M
33/16
C414
RPE@
0.1
J108
AGND_FJ
AGNDM
NIU
J111
+12VFJ
+12VM
NIU
J106
-12VFJ
-12VM
NIU

CIRCUIT DIAGRAM (REAR JACK)

MUTE CONTROL



LINE IN



PEDAL

From PEDAL

JK206
YKF51-5031

L207 5mm
L208 5mm
L209 5mm
L210 5mm
L200 5mm

To PAB8

CN200
REF +5
DAMPER
SOSTENUTE
SOFT
REF GND
53253-0510

C244 RPE@ 0.1
C243 ECEA-KA@ 47/25

R252 SR25TR@J 680k
R253 SR25TR@J 680k
R254 SR25TR@J 680k

TER200 M1698
TER201 M1698

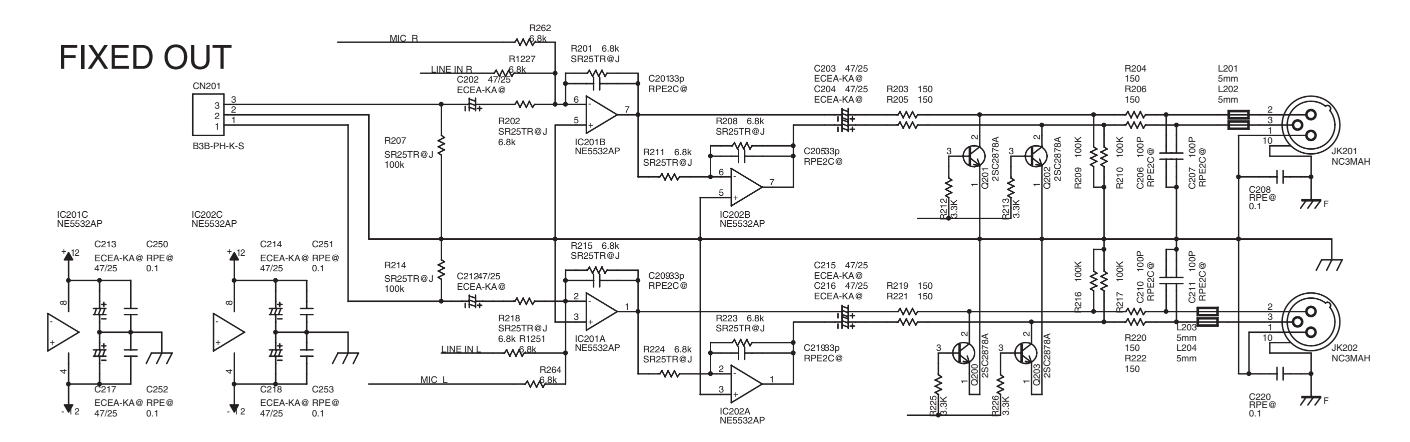
FOR REAR TOP JACK

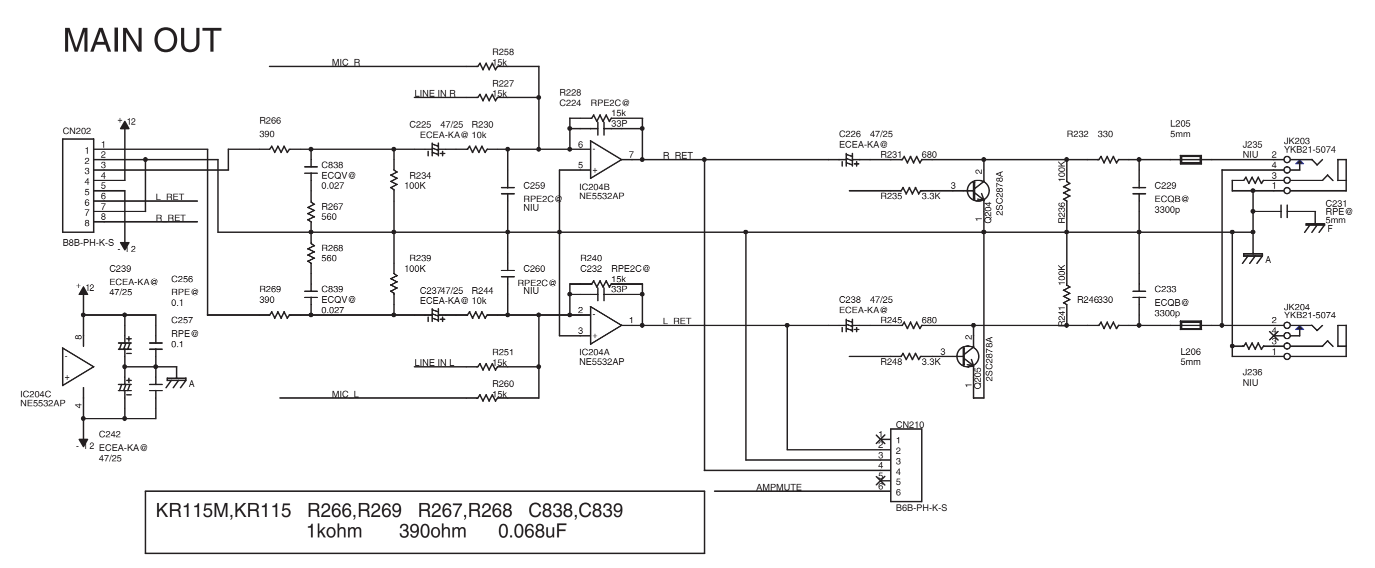
CN203
MUTE
B4B-PH-K-S(PB-FREE)

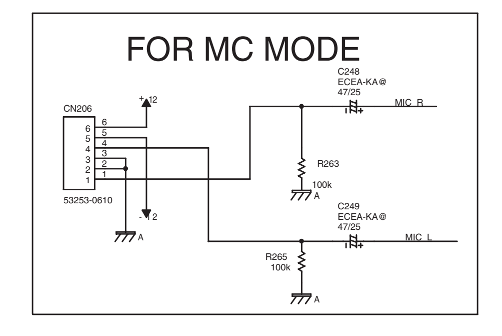
To FRONT JACK BOARD

CN207
53253-0310

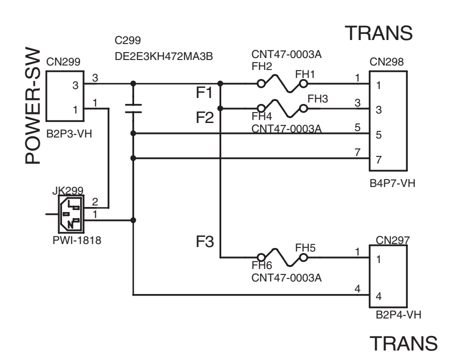
"NIU" means "Not In Use"







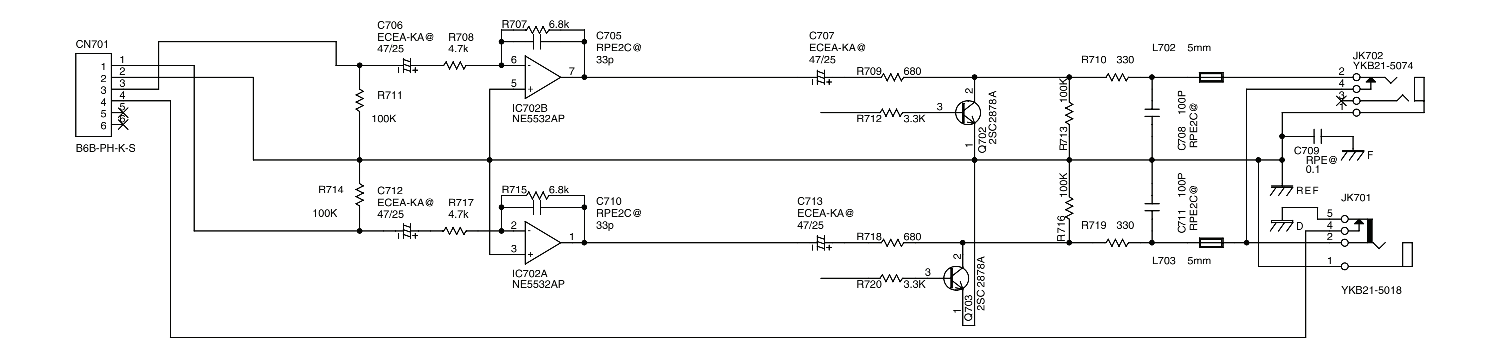
	100/117V	230/240V
KR117M	F1:5ST T4AL250V F2:5ST T4AL250V F3:5ST T5AL250V	F1:5ST T2AL/250V F2:5ST T2AL/250V F3:S506 T2AL250V
KR115M	F1:5ST T4AL250V F2,FH3,FH4:NIU F3:5ST T5AL250V	F1:5ST T2AL/250V F2,FH3,FH4:NIU F3:S506 T2AL250V
KR115	F1:5ST T4AL250V F2,FH3,FH4:NIU F3,FH5,FH6:NIU	F1:5ST T2AL/250V F2,FH3,FH4:NIU F3,FH5,FH6:NIU

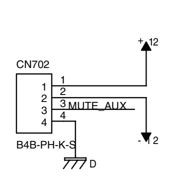


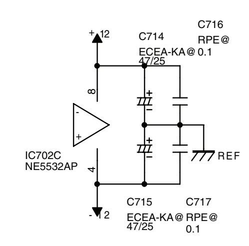
"NIU" means "Not In Use"

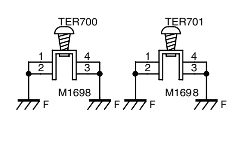
CIRCUIT DIAGRAM (AUX)

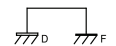
AUX OUT



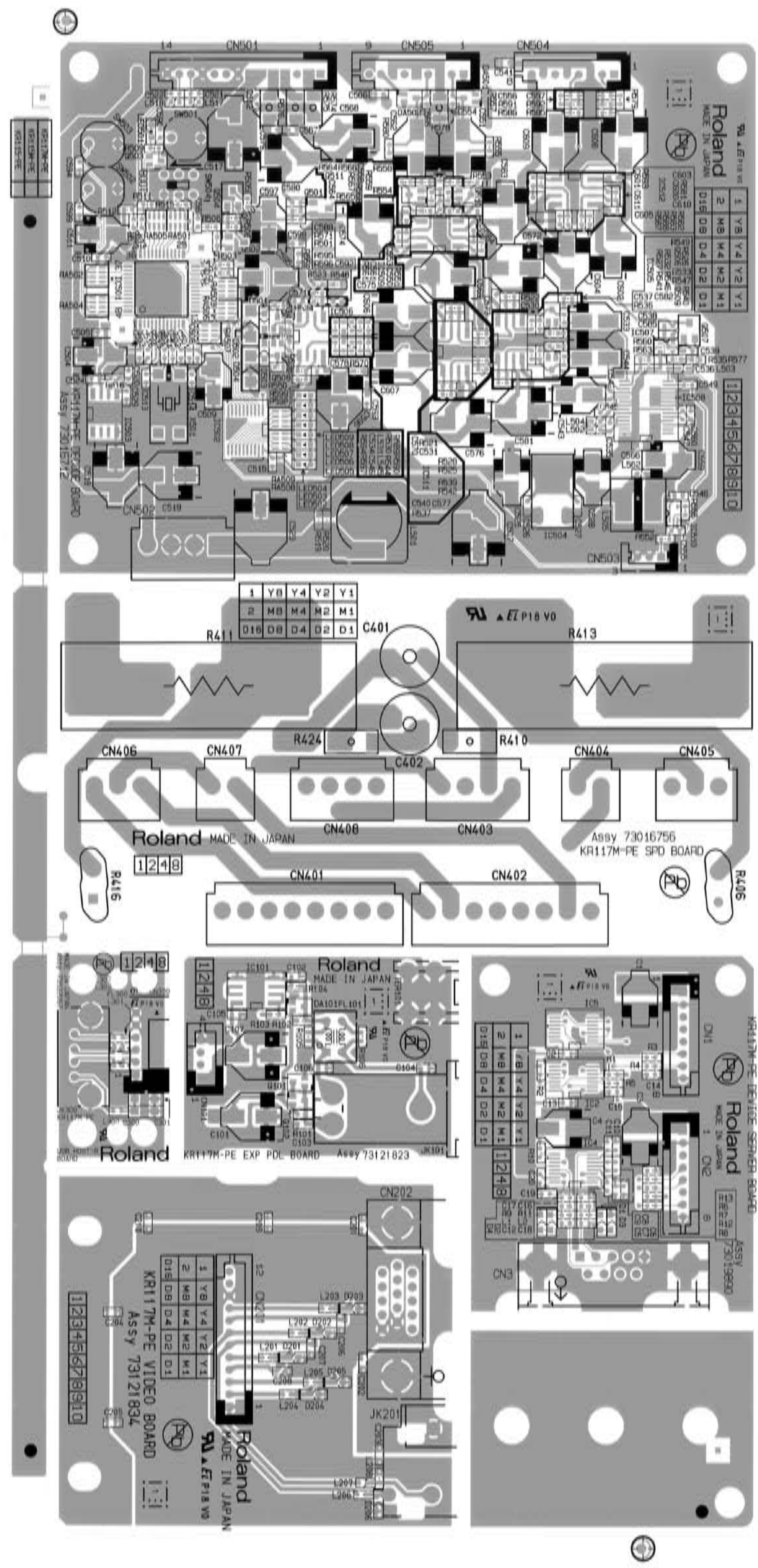




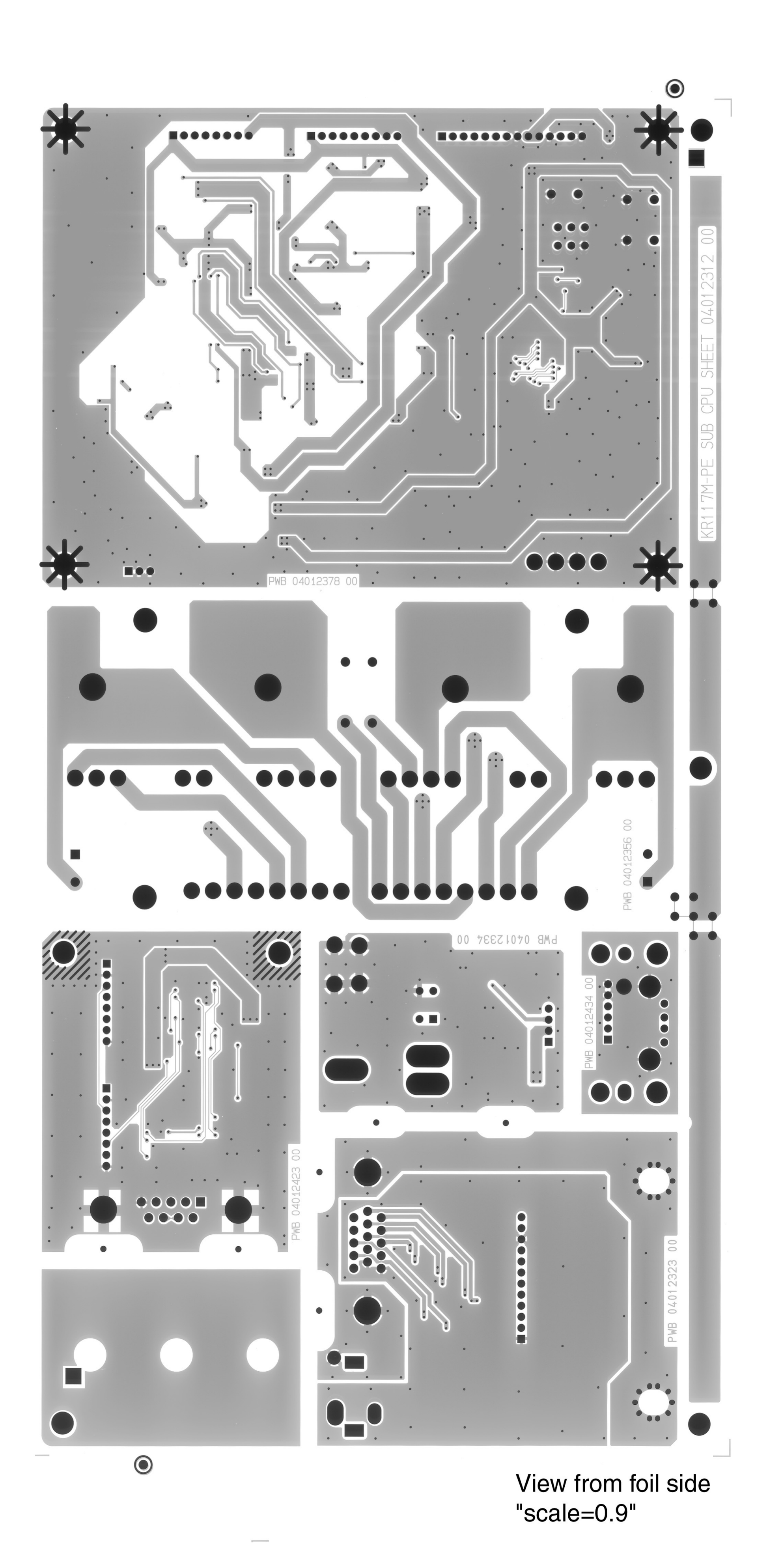




CIRCUIT BOARD (VIDEO,EXP-PDL,SPD,DECODE,DEVICE SERVER BOARD)

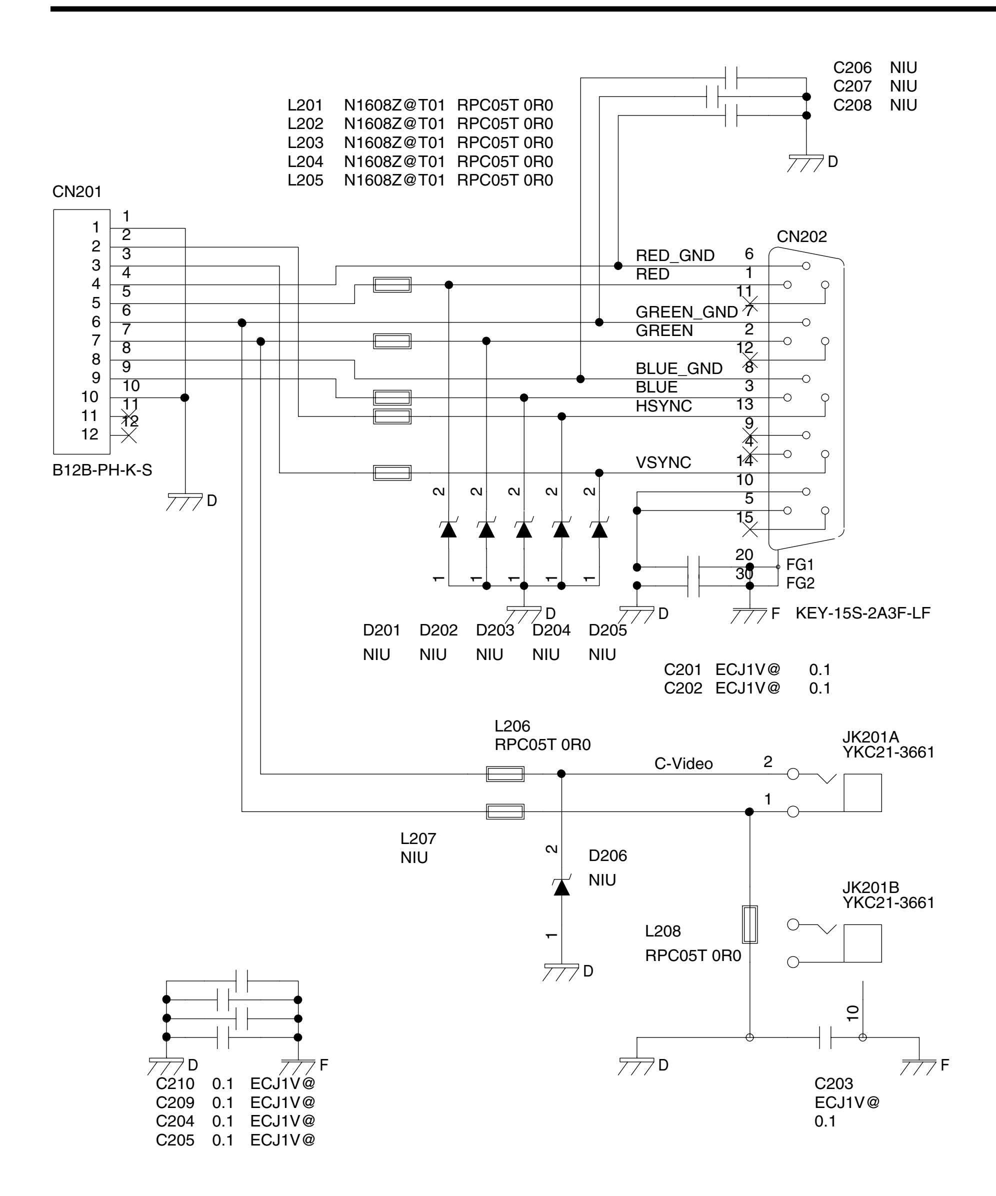


View from components side
"scale=0.9"

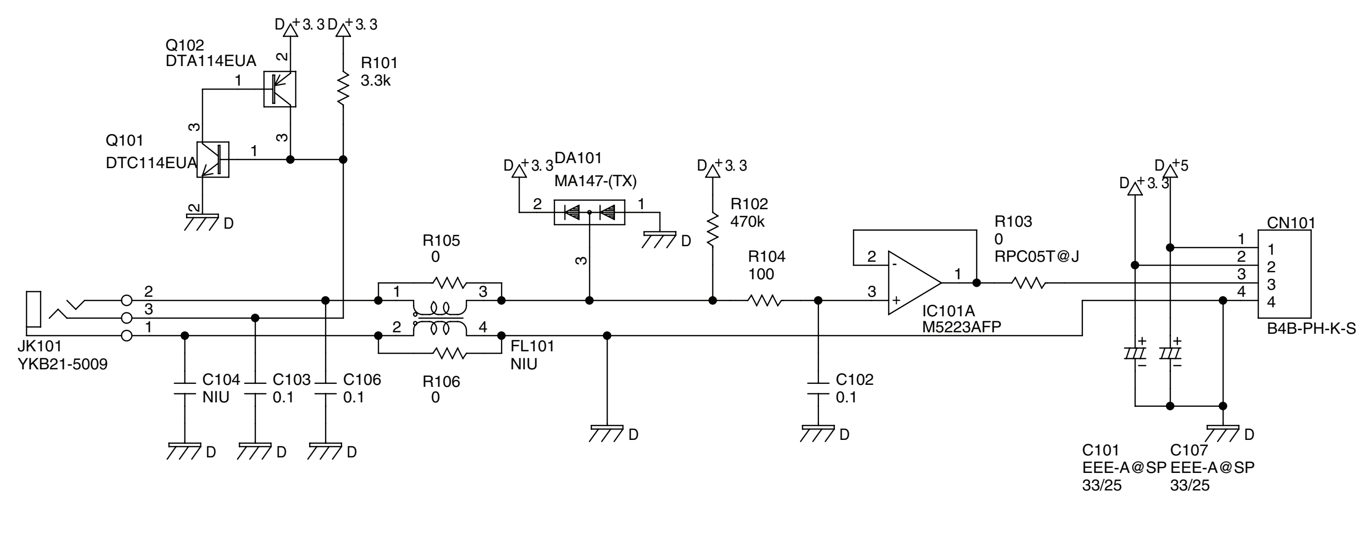


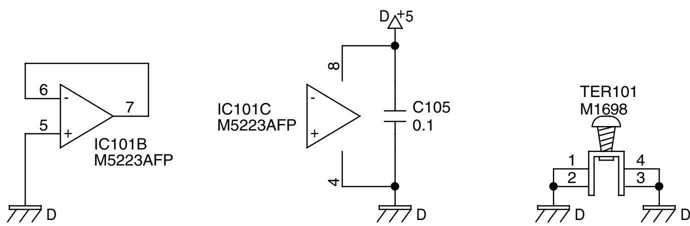
View from foil side
"scale=0.9"

CIRCUIT DIAGRAM (VIDEO,EXP-PDL,SPD BOARD)

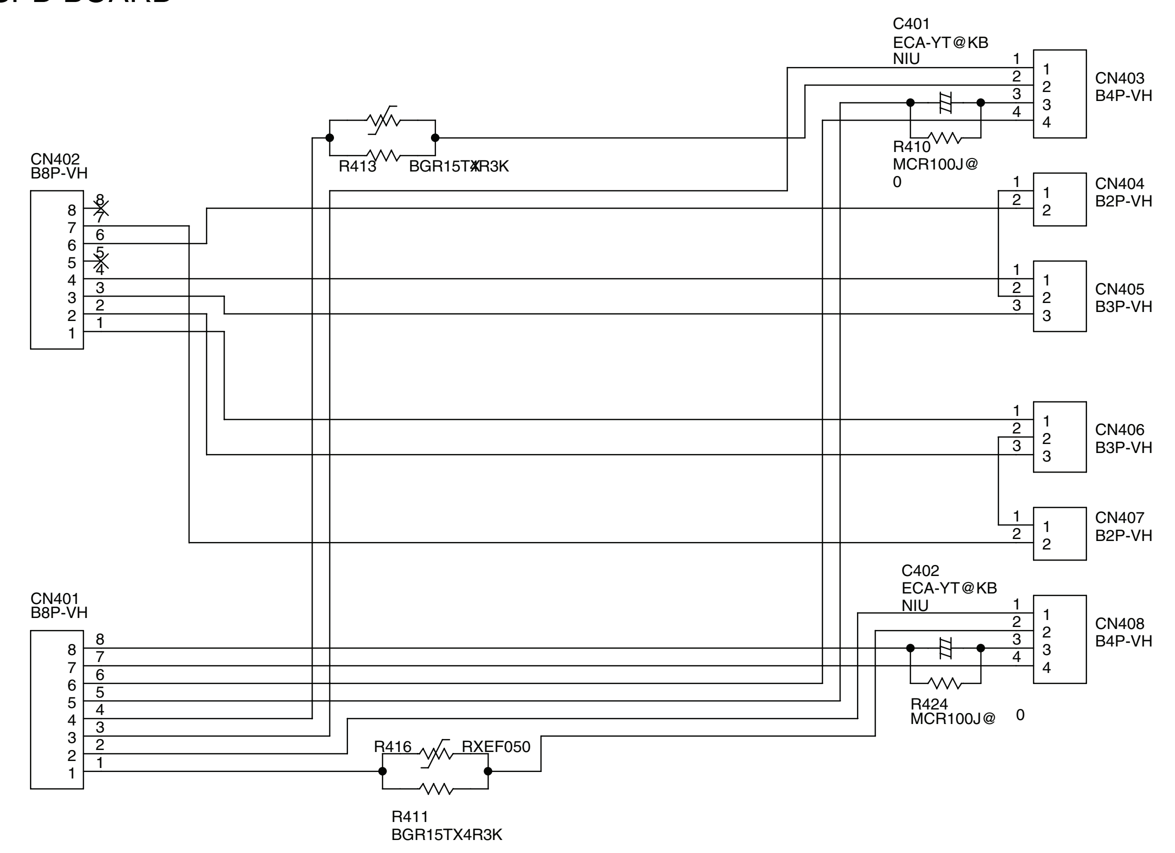


EXP PDL BOARD

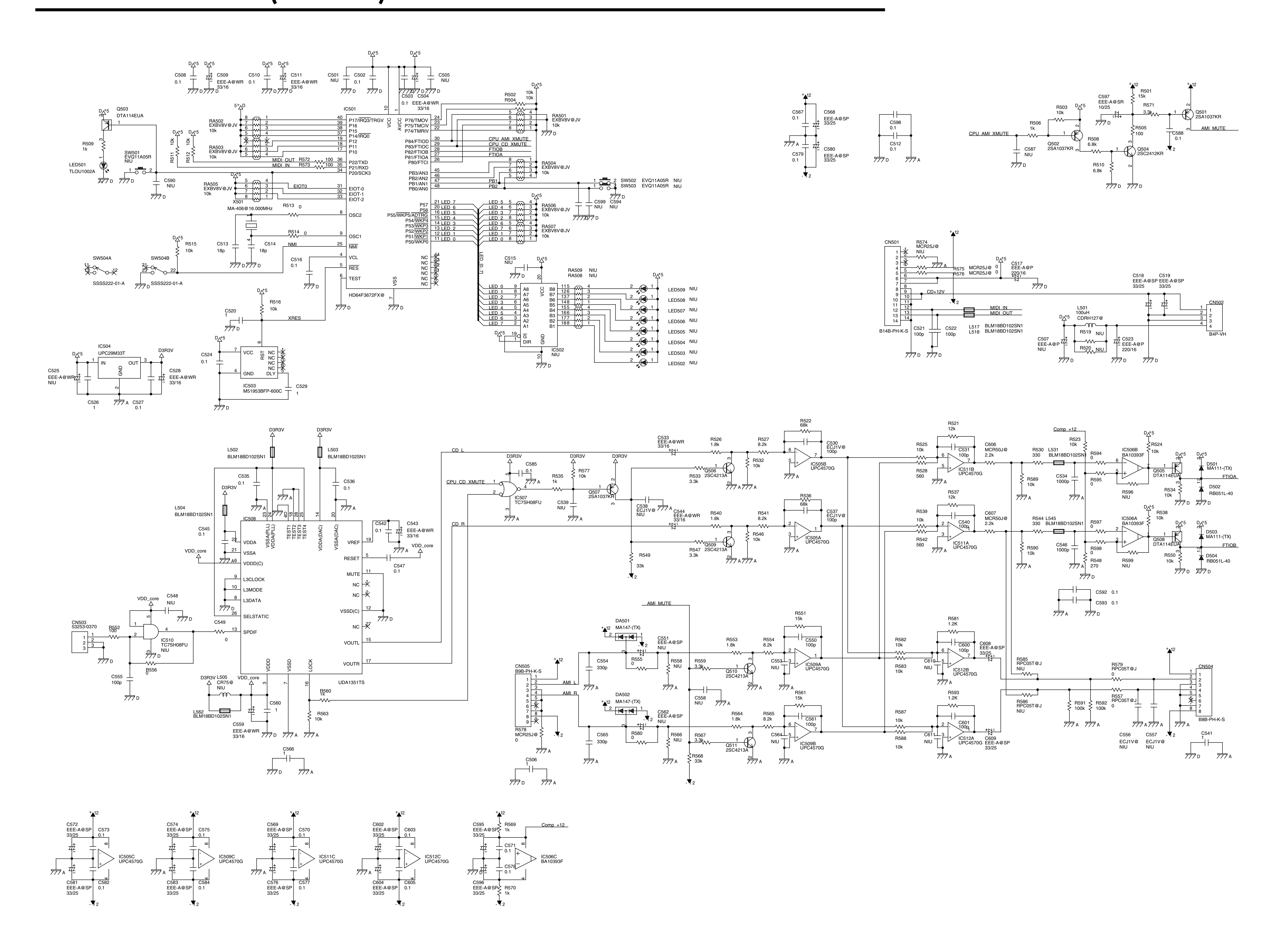




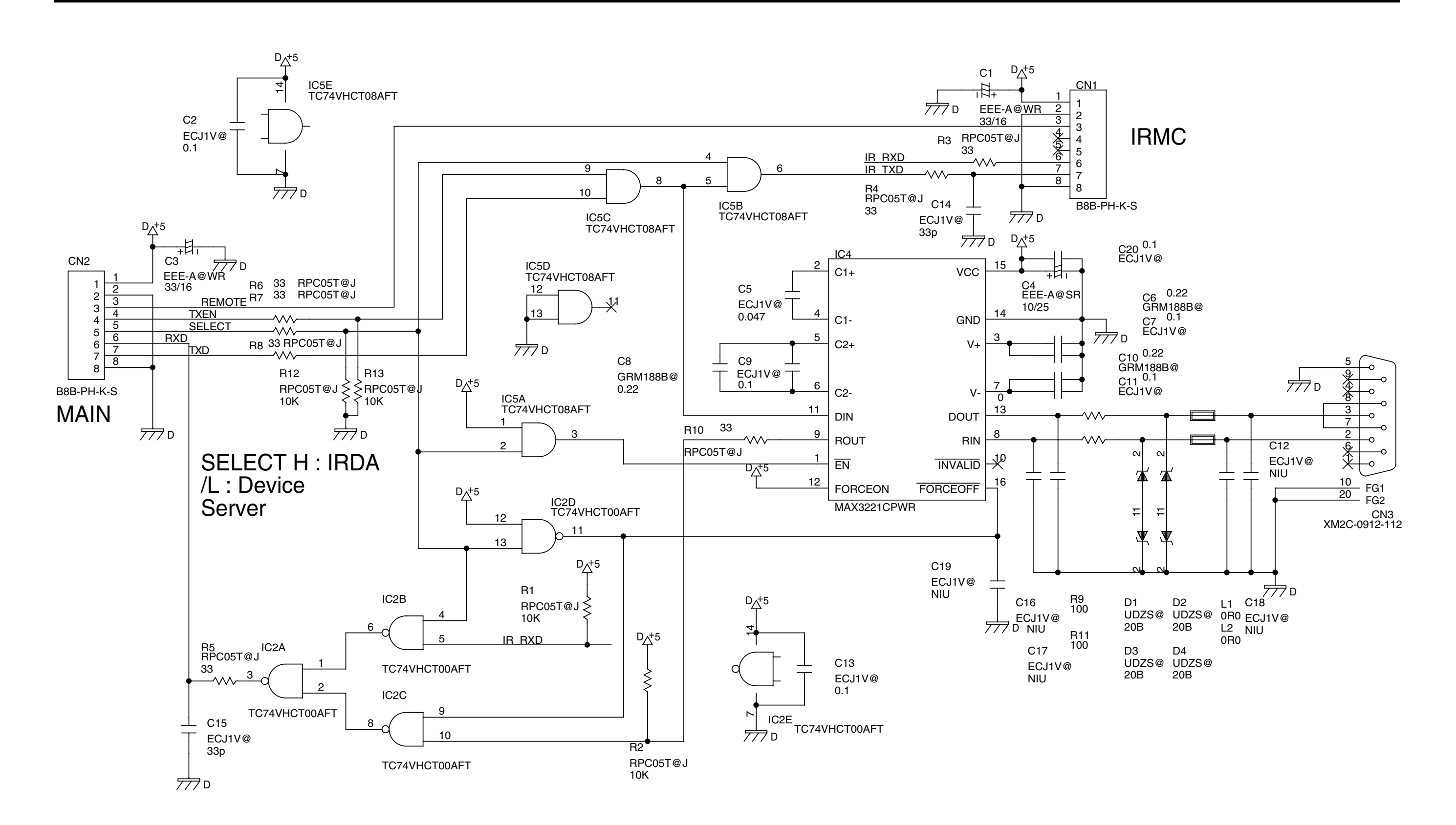
SPD BOARD



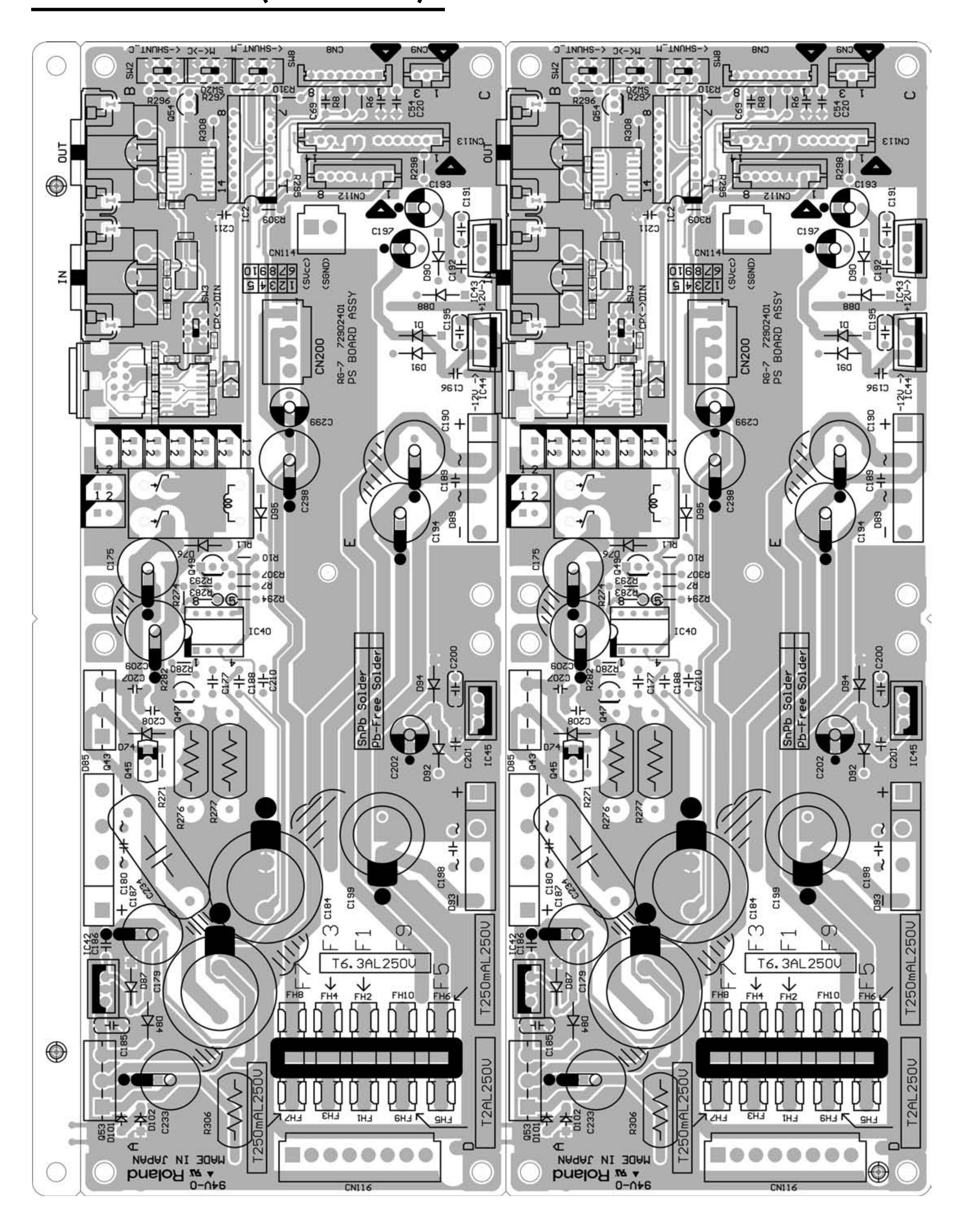
CIRCUIT DIAGRAM (DECODE)

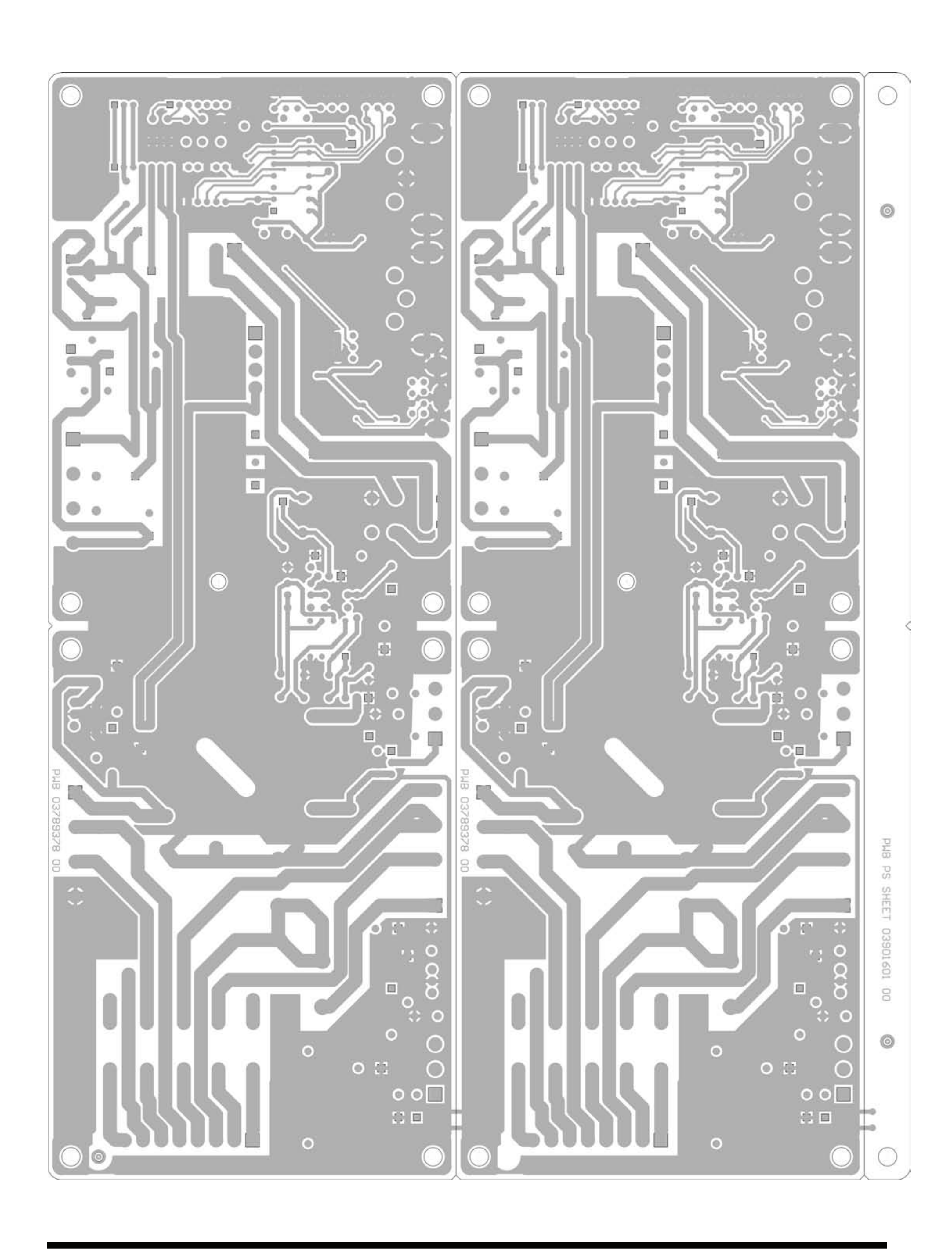


CIRCUIT DIAGRAM (DEVICE SERVER BOARD)

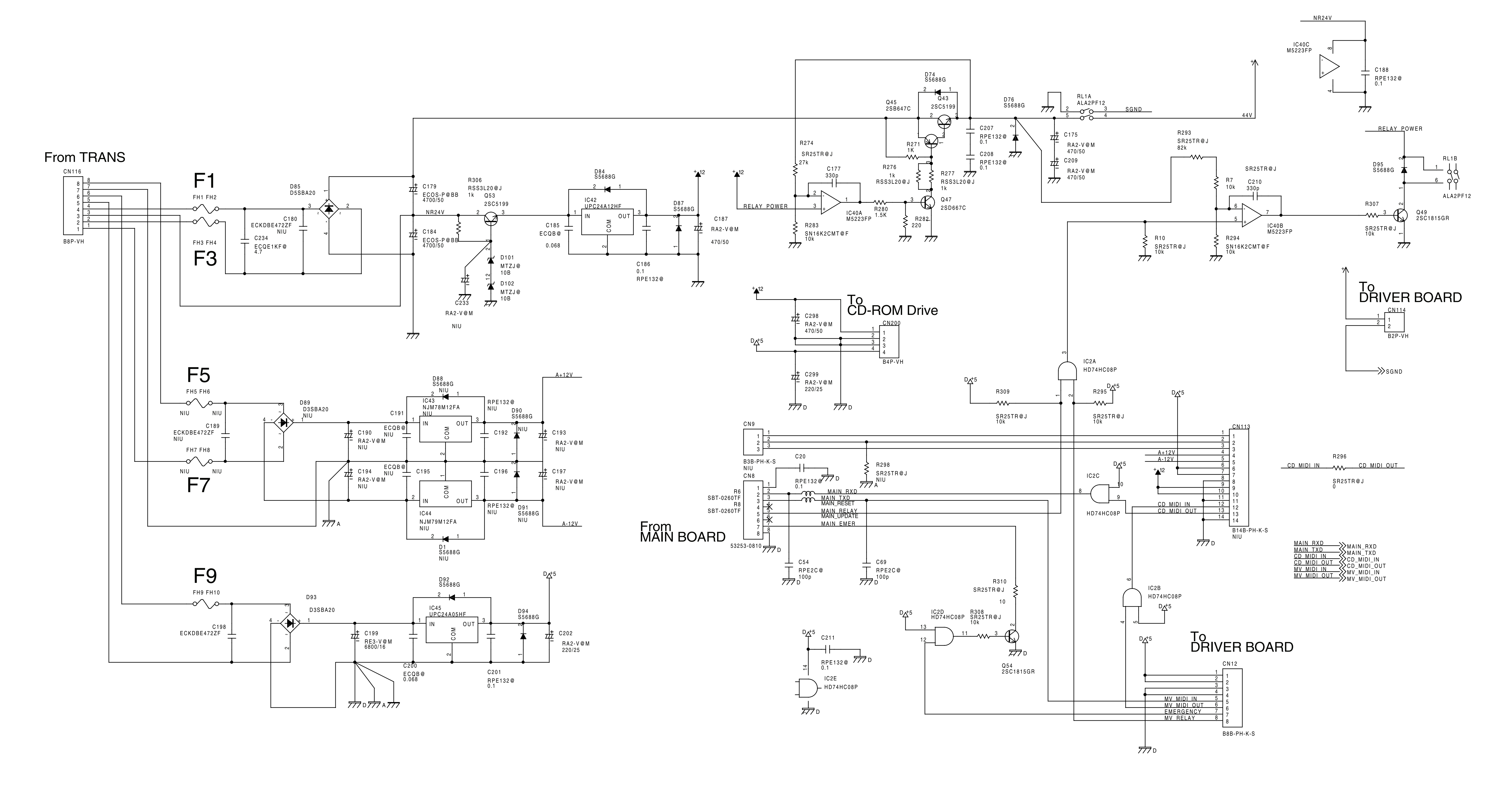


CIRCUIT BOARD (PS BOARD)



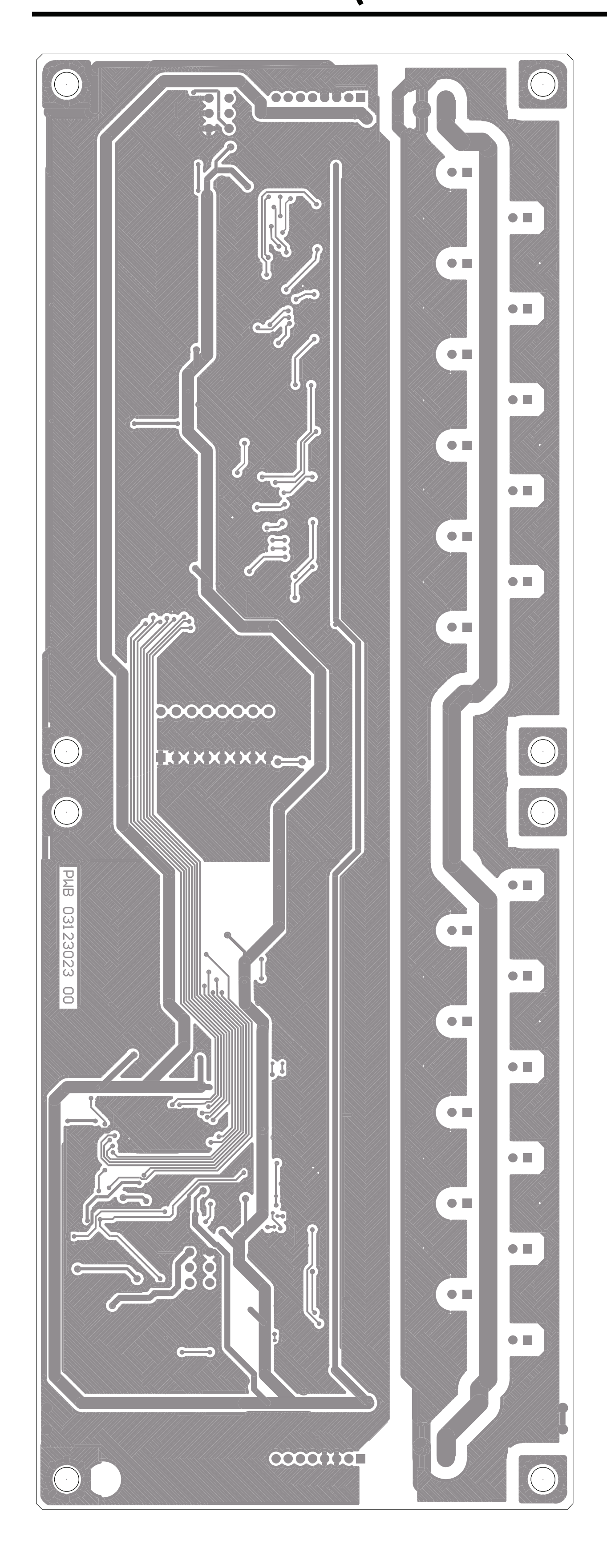

PWB 03789378 00
PWB 03789378 00
PWB PS SHEET 03901601 00

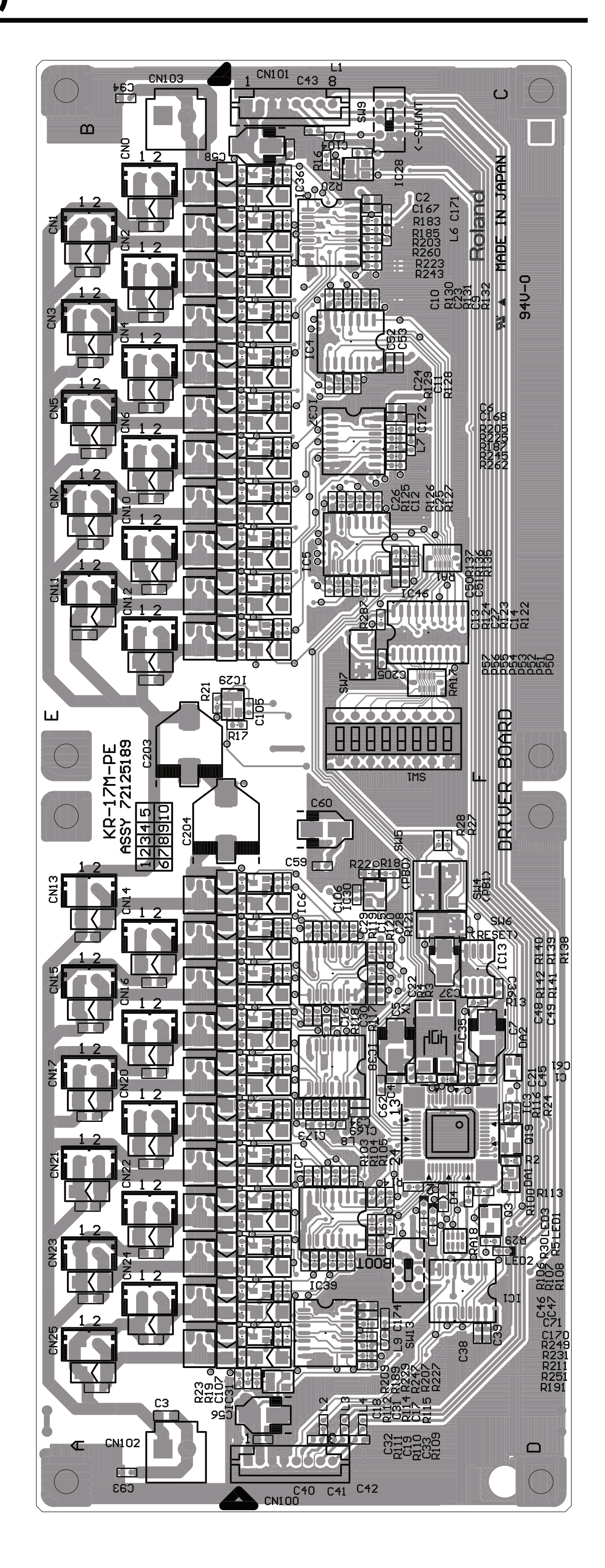
CIRCUIT DIAGRAM (PS BOARD)



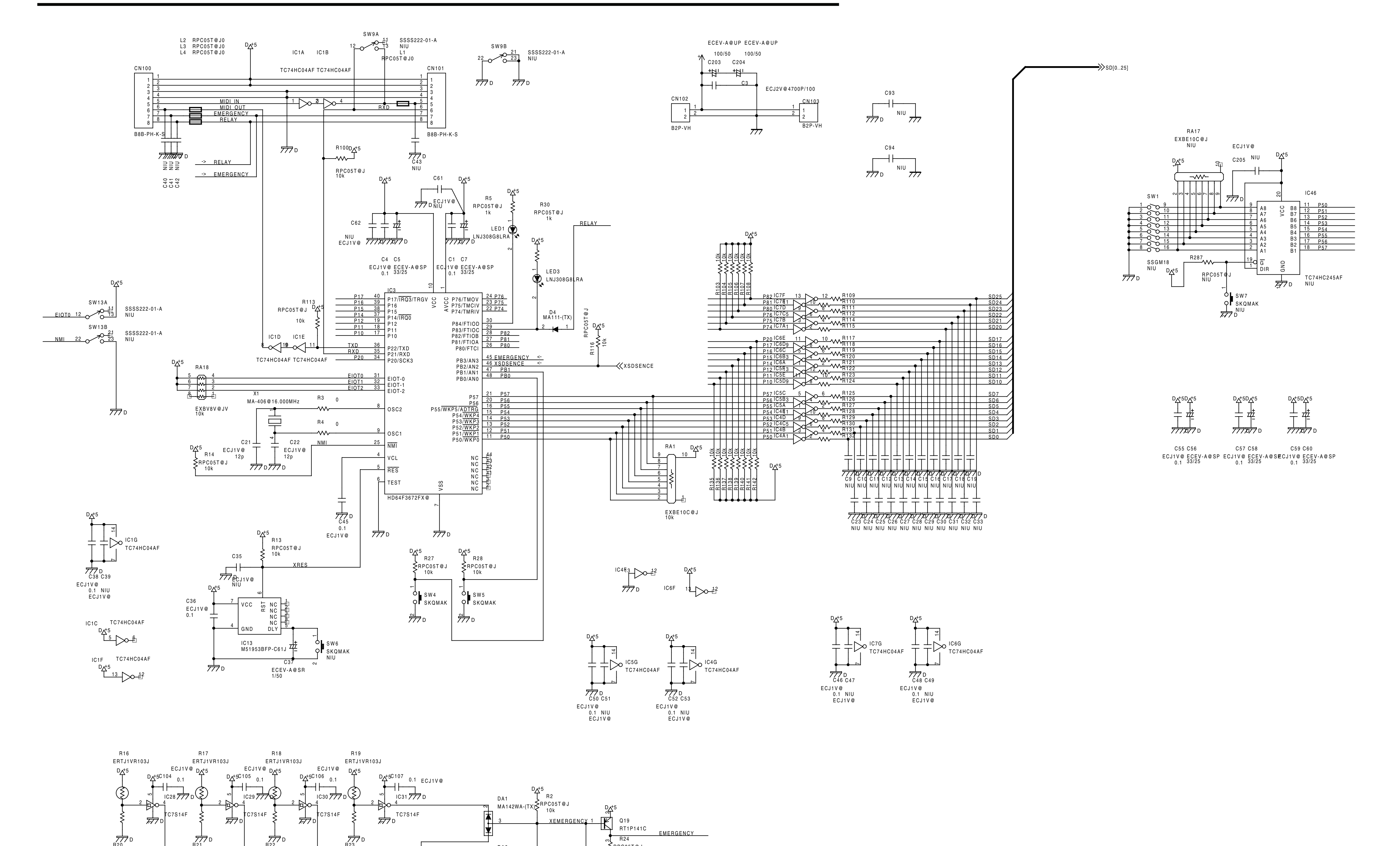
"NIU" means "Not In Used"

CIRCUIT BOARD (DRIVER BOARD)



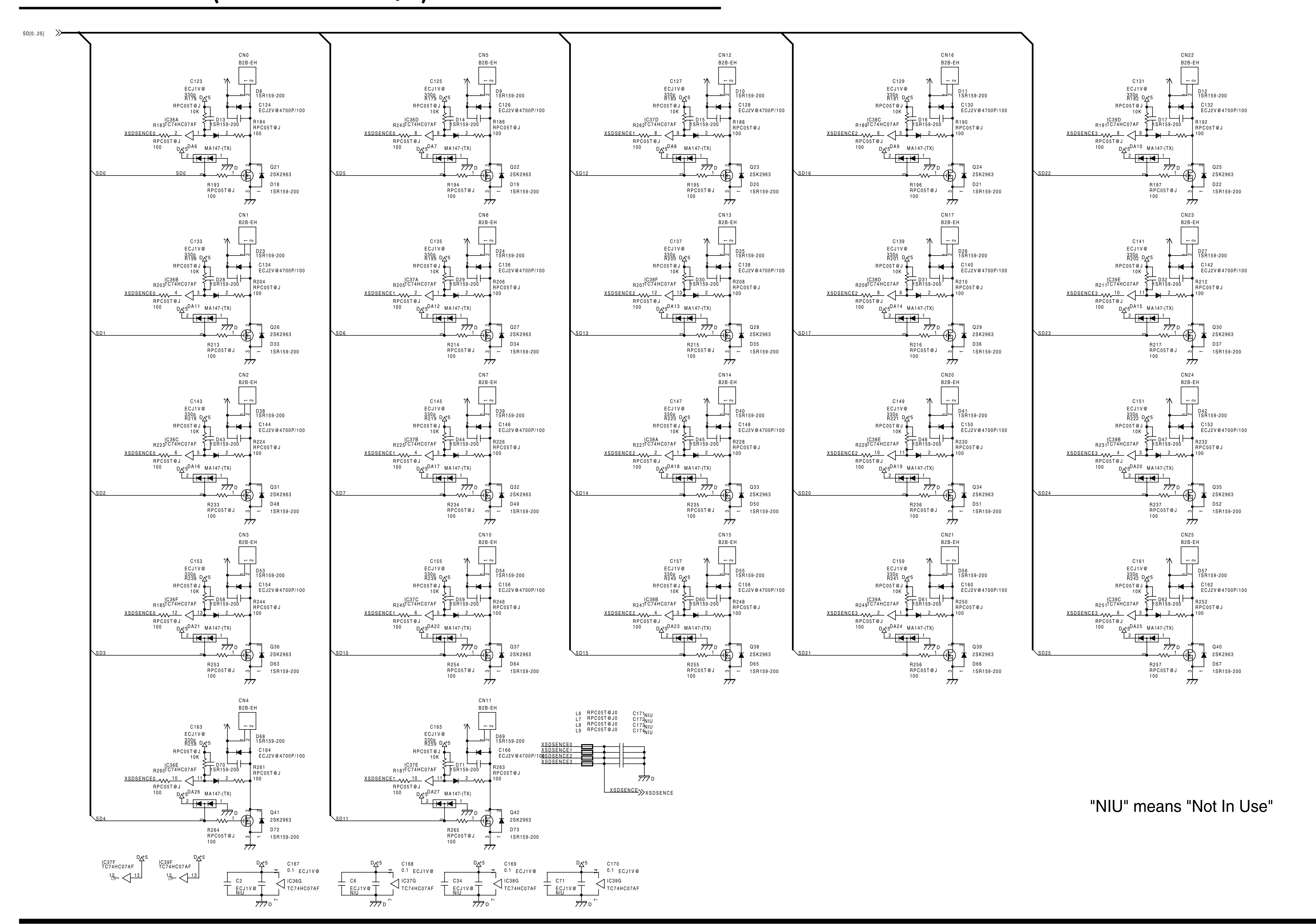


CIRCUIT DIAGRAM (DRIVER BOARD 1/2)



"NIU" means "Not In Use"

CIRCUIT DIAGRAM (DRIVER BOARD 2/2)



"NIU" means "Not In Use"

ERROR MESSAGES

<table>
<tr><th>Indication</th><th>Meaning</th></tr>
<tr><td>Error 01:</td><td>You can only read the music file. It can not be saved.</td></tr>
<tr><td>Error 02:</td><td>An error occurred during writing. The storage media’s protect tab may be in the “Protect” (writing prohibited) position, or the storage media may not yet be initialized.</td></tr>
<tr><td>Error 10:</td><td>No storage media is inserted.
Insert the storage media and try again.</td></tr>
<tr><td>Error 11:</td><td>There is not sufficient free memory in the save destination.
Either insert other storage media or delete unneeded files and try again.</td></tr>
<tr><td>Error 14:</td><td>An error occurred during writing. The storage media may be corrupted.
Insert other storage media and try again. Alternatively, you can initialize the storage media.</td></tr>
<tr><td>Error 15:</td><td>The file is unreadable.
The data format is not compatible with the KR.</td></tr>
<tr><td>Error 16:</td><td>Data was not called up in time for playback of the song.
After waiting several seconds, you may be able to play back the song by pressing the [►/■] button again.</td></tr>
<tr><td>Error 17:</td><td>The selected image data cannot be displayed.
Prepare image data that can be used with the KR (Owner's Manual p. 171).</td></tr>
<tr><td>Error 30:</td><td>The internal memory capacity of the KR is full.</td></tr>
<tr><td>Error 40:</td><td>The KR cannot deal with the excessive MIDI data sent from the external MIDI device.
Reduce the amount of MIDI data sent to the KR.</td></tr>
<tr><td>Error 41:</td><td>A MIDI cable has been disconnected.
Connect it properly and securely.</td></tr>
<tr><td>Error 43:</td><td>A MIDI transmission error has occurred.
Check the MIDI cable and connected MIDI device.</td></tr>
<tr><td>Error 51:</td><td>There may be a problem with the system.
Repeat the procedure from the beginning. If it is not solved after you have tried several times, contact the Roland service center.</td></tr>
<tr><td>Error 60:</td><td rowspan="4">Moving Key Error.
Stop use immediately, and contact the nearest Roland Service Center.</td></tr>
<tr><td>Error 61:</td></tr>
<tr><td>Error 62:</td></tr>
<tr><td>Error 63:</td></tr>
<tr><td>Error 65:</td><td>The Ext Memory port was subjected to excessive current.
Check the storage media to confirm that no damage has occurred to it.</td></tr>
</table>

Protection cover

